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Editorial
Ecology and Education in a Purposeful World

If the earth is an inanimate machine, if human beings are animals whose fulfillment can be measured in degrees of comfort, then the earth might submit itself to pragmatic understanding. But if the earth and we ourselves are expressions of the divine, then pragmatism will only partially reveal the nature of our relationship with the planet and the purposes that underlie our creation and destiny.

If we think of the earth as a giant clock, we may think of the depletion of the ozone, acid rain, the destruction of the rain forests, and the accumulation of toxic and nuclear wastes as pressing mechanical problems that may bring the whole system of interlocking parts — including ourselves — to an untimely end. Although this perspective may indeed be accurate, it is nonetheless incomplete for a purposeful world.

There is a purposiveness that underlies physical objects within the universe — and the universe itself — that transcends physical properties and instrumental functions. The path to apprehending and appreciating how things relate to each other — rather than merely to ourselves — may start with something as simple as reverence.

Let us bear in mind that a clock is not merely a self-sustaining, mechanical system, but an instrument designed to fulfill a task: the measurement of time. A clock has a purpose or objective that cannot be identified through an inspection of its wheels or gears or the system as a whole; its components and functions derive from a generative idea quite beyond it as a physical object. Each tick of the second hand taps into a flow of time — a flow that itself is woven in streams of mass and energy. Each tick of the second hand incorporates within itself the fundamental principles that govern the evolution of the physical universe.

Similarly, as we turn our attention to a simple cell, we may begin to see that its elements and systems have a purpose and function that transcend the cell itself. A leaf cell, for example, synthesizes sunlight, water, carbon dioxide into simple sugars, which in turn help to sustain the entire plant. The plant provides a home for insects, food for animals, and nitrogen for the soil as it participates in an ecosystem. Each ecosystem (as we only recently have come to recognize) contributes to a global balance, a fluid system of ecosystems. Yet, like the clock whose various components incorporate but do not reveal the higher purposes undergirding it, the cell does not reveal the purposes and principles of its creation.

If the earth is part of a divinely guided evolution and there is a purpose to our existence, then each mechanical function from the most ordinary and commonplace to the most extraordinary and grand is imbued with purpose and meaning — a meaning that can be understood through reference to higher purpose rather than instrumental function.

In this case, the earth is not merely an isolated bit of matter, but a spiritual nexus, a place of and for being; higher purpose courses through all things; and the opportunity for spiritual development is present in each moment of relation. Mountains, trees, air, rivers, and all living creatures are part of the earth's creative purpose. This is not to suggest that all events in the natural world are guided by a mysterious hand, but rather that each aspect of the created world, with its various properties, participates in a balance that can sustain our spiritual evolution. As we encounter each of them, we are given the opportunity to unfold an aspect of our being: to clarify our thought, deepen our feeling, and engage our will.

Imbalances occur, ecological crises arise, when we neglect our spiritual opportunities and responsibilities in favor of material gain. When pragmatic intent substitutes for spiritual purpose, imbalance occurs. In this context, the ecological crises of our time result

from our narrow, incomplete conceptions of ourselves, the earth, and our relationship to it.

Although environmental policy and technological advancement may provide remedies to particular ecological crises, long-term and sustained environmental balance requires that we transform our fundamental understanding of the opportunities and responsibilities afforded by life on earth. The road to such transformation may begin with something as simple as the cultivation of reverence. *Reverence* here is not intended to describe a subjective impression, but a mode of approach — a foundation for understanding that does not begin with a specific intention, but with openness. Reverence is the objective context within which one can observe the creative flowing through the created. Reverence of this sort is not an impression; it is not a sentimental response to something perceived. Rather, it provides an initiation to an encounter with the creative genius that flows through all things in the created world.

With reverence, we are able to see things as they relate to one another rather than as they relate solely to our intent. We are able to perceive the creative power imbuing us and all others around us with form, function, and life itself. The formative patterns and relationships which course through creation will begin to emerge so that we can better understand everything from the animating forces beyond chemical mechanisms governing the life of a cell to the evolution of human form from a single cell in the primordial soup to a crucible of consciousness.

The cultivation of reverence will not only enhance the clarity of our thought, but also deepen our capacity to appreciate and care for something beyond ourselves. As we learn to care for one another, each of us can begin to unburden ourselves from the yoke of self-interest. This capacity to balance one's self-interest with the interests of others, both human and nonhuman, is the lifeblood of true community; no longer need we deceive ourselves that we are isolated individuals bound only by the instrumentalities that come with social affiliation. As we are released, we can begin to distinguish the essential from the nonessential in ourselves and more completely do what we have come to the world to do.

Through reverence, we can become sensitive to and infused by the creative forces that flow through all creation. These creative energies can resonate within us; they can revitalize and heal us if we are only open to them. The creativity that flows through the created flows through us as well; as we encounter nature reverentially, we are inwardly quickened, we *become*. Such experience of nature is particularly critical during childhood, when creative encounters can help form a sound physiological foundation for an active life, within and without.

Lastly, an attitude of reverence can be the most efficient, effective practical disposition. When we recognize and appreciate the complexity of the natural world, we may be able to more fully understand the consequences of our actions. Our respect for the earth may enable us to resolve practical problems without a price that we mistakenly believe can be put off until the future. Our lack of reverence has created such imbalance that we can no longer defer ecological concerns to a future that we seem to believe will never dawn.

In the end, the fundamental ecological crises of our time reflect not our lack of technological mastery, but our lack of mastery over ourselves. These crises give us an opportunity to see more clearly the tasks we must assume within a purposeful world and within ourselves.

— Jeffrey Kane

The articles in this month's issue of *Holistic Education Review* offer a variety of perspectives on how we may live in the world and educate our children so that we can restore balance and purpose to the earth as a community. Each essay asks us to reassess our basic relationship with the earth as we set about our educational tasks.

The Problem of Disciplines/ The Discipline of Problems

David W. Orr

Academic disciplines do not reflect the way we intuitively sense the world. Despite talk to the contrary, we have yet to engage in real interdisciplinary learning — and the results have been tragic. Educators can begin the process by early study of natural systems as we naturally experience them and by engaging faculty and students in solving "local" problems, thus integrating learning with service.

Adapted from David W. Orr's article "The Problem of Disciplines/The Discipline of Problems," in *Conservation Biology* (March 1993).

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We experience nature mostly through sight, sound, smell, touch, and taste — through a medley of sensations that play upon us in complex ways. But we do not organize education the way we sense the world. If we did we would have departments of Sky, Landscape, Water, Wind, Sounds, Time, Seashores, Swamps, and Rivers. Instead we've organized education like mailbox pigeonholes, by disciplines that are abstractions organized for intellectual convenience. Hardly one scholar in ten could say why or when this came to be, but most would state with great conviction that it is irrevocable. The "information explosion" has further added to the impulse to divide knowledge by smaller and smaller disciplinary categories, and the end is not in sight.

There is, nonetheless, a good bit of grumping about academic specialization, intellectual narrowness, and pigeonhole thinking. But despite decades of talk about "interdisciplinary courses" or "transdisciplinary learning," there is a strong belief that such talk is just talk. Those thought to be sober or at least judiciously dull mostly presume that real scholarship means getting on with the advance of knowledge organized exclusively by disciplines and subdisciplines. It doesn't seem to matter that some knowledge may not contribute to an intelligible whole, or that some of it is utterly trivial, or that parts of it are contradictory, or that significant and life-enhancing things are omitted, or that what passes for rigor is often applied to arcane minutiae.

If this were all that happened as a consequence of the way we organize knowledge, the results would be merely unfortunate, but the truth is that they are, in a deeper sense, tragic. The great ecological issues of our time have to do in one way or another with our failure to see things in their entirety. That failure occurs when minds are taught to think in boxes and not taught to transcend those boxes or to question overly much how they fit with other boxes. We educate many in-the-box thinkers who perform within their various specialties rather like a dog kept in the yard by an electronic barrier. And there is a connection between knowledge organized in boxes, minds that stay in those boxes, and the inability of those minds to perceive the causes of

degraded ecologies and global imbalances. The situation is tragic in that many suspect where all of this is leading, but believe themselves powerless to alter it.

Our situation is tragic in another way. Often those who do comprehend our plight intellectually, cannot feel it and hence are not moved to do much about it. This is not merely an intellectual failure to recognize our dependence on natural systems, which is fairly easy to come by. It is, rather, a deeper failure in the educational process to join intellect with affection and loyalty to the ecologies of particular places, which is to say a failure to bond minds and nature. It is no accident that this bonding happens far less often than we might hope. Professionalized and specialized knowledge isn't about loyalty to places or to the earth, or even to our senses, but rather about loyalty to the abstractions of a discipline. The same can be said of the larger knowledge "industry," which was intended to make us rich and powerful by industrializing the world. This may help to explain why increasingly sophisticated analyses of our plight coincide with a paralysis of will and imagination to get at its roots.

And so we tinker. We add a course here and another requirement there and hold a symposium in some exotic place. Those who are bold enough, tack on another outshed to the rambling curricular edifice of Babel and call it "environmental studies." If our crisis, however, is first and foremost a crisis of mind and perceptions, as I believe it to be, the time has come for a fundamental reconsideration of how we might encourage what Edith Cobb has called "an acute sensory response to the natural world" (Cobb, 1977, p. 30). I offer two ideas.

First, I suggest that at all levels of learning K through Ph.D., some part of the curriculum be given to the study of natural systems roughly in the manner in which we experience them. The idea is hardly novel. In various ways it is the basis of programs offered by the National Outdoor Leadership School, Outward Bound, and can be found in courses in a few innovative colleges, and in others offered by a few nonprofit institutes. It is also an old idea going back at least as far as the belief that nature has something to teach us. The idea is simply that we take our senses seriously throughout education at all levels and that doing so requires immersion in particular components of the natural world — a river, a mountain, a farm, a wetland, a forest, a particular animal, a lake, an island — before introducing students to more advanced levels of disciplinary knowledge.

For example, a course on a nearby river, such as that proposed on the Hudson River by biologist Carl McDaniel at Rensselaer Polytechnic Institute, would require students to live on the river for a time, swim in it, canoe it, watch it in its various seasons, study its wildlife and aquatic animals, listen to it, and talk to people who live along it (McDaniel, 1993). For McDaniel the Hudson is intended as "a microcosm of the world," and a doorway to wider knowledge. Each student would research a particular aspect of the river, say, its folklore, social history, evolution, art, chemistry, ecology, literature, or the politics and law that govern its use. Collectively, a picture of the river might begin to emerge that would be more than the sum of the individual projects. McDaniel is not proposing just a weekend "field trip," but a longer period of time to allow the senses to soak in the experience through sight, sound, taste, smell, and feel until something like profound respect, or more, begins to take root.

What might such an experience do? First, it would remove the abstractness and second-handedness that corrupts knowledge at its source. Natural objects have a concrete reality that the abstractions of textbooks and lectures do not and cannot have. Second, a course on a river or a forest or a farm might help make up the experience deficit now common among urban and suburban young people, whose minds have marinated over long in shopping malls, video games, and television. Third, it would cultivate mindfulness by slowing the pace of learning, to allow a deeper kind of knowing to occur. Fourth, it would give students stronger reasons to want to learn things that require the knowledge of various disciplines. Fifth, it would teach the art of careful field observation and the study of place. Sixth, it would teach students that there are some things that cannot be known or said about a mountain, or a forest, or a river — things too subtle or too powerful to be caught in the net of science, language, and intellect. It would introduce them to the mysterious and unknowable before the merely unknowns of a particular discipline.

What I propose, more broadly, is a courtship between mind and nature, or perhaps an awakening. I believe that we should introduce students to the mysteries of specific places and things before giving them access to the power inherent in abstract knowledge. I propose that we aim to fit the values and loyalties of students to specific places before we equip them to change the world. I propose that we give students a stronger reason to want to know, while making them more trustworthy in the use of knowledge. I propose that we make them accountable in small things before giving them the keys to the creation.

Among the precedents for the experience I'm proposing are Thoreau's *Walden*, Aldo Leopold's study of the natural history surrounding his "shack," Anne Dillard's (1974) sojourn at Tinker Creek, John Hanson Mitchell's (1984) study of 15,000 years on a square mile in Massachusetts, and William Least Heat Moon's (1991) study of Chase County, Kansas (what he calls "a

deep map"). And there is the experience, if we are willing to acknowledge it, from indigenous cultures, many of which were extraordinarily adept at drawing mind and nature together over long periods of time. I have a second and related suggestion for overcoming disciplinary narrowness and the aloofness that is all too often characteristic of academic institutions. Dr. Alan Mermann at the Yale School of Medicine describes the problem:

> Careful studies and accurate reports are done; papers are published in distinguished journals; but evidence of efforts to engage the problems on site is sadly lacking.... We have a long history of avoidance of unpleasant tasks requiring commitment and sacrifice.... We find it easier to use our minds and our resources for the solution of intellectual problems because we are then freed from the burdens of seeing our interdependence and our indebtedness as persons. (Mermann, 1992)

I believe this, in the main, to be true. Educational institutions and professionalized scholars do tend to seal themselves off from the unpleasant and less rewarding challenges around them, and doing so is the basis of the system of professional rewards. Scholars who become involved in efforts to solve local problems are rarely honored and rewarded by their institutions in the same manner as if they published regularly in specialized journals. In contrast, I propose that we engage young people and faculty together in the effort to solve real problems both on and off campus. I do not propose such efforts as "service" projects alone, but as ways to integrate learning with service. Opportunities are all around us. Virtually all schools and institutions of higher education are located in places whose ecologies and communities are under assault — rural and urban places alike that are polluted, exploited, and increasingly derelict. What do faculty and students know that might restore such places? How might the effort to solve real problems be made a part of the curriculum? How might the discipline of wrestling with real problems change how we think about education and the organization of knowledge?

Often those who do comprehend our plight intellectually, cannot feel it and hence are not moved to do much about it.

One example of the kind of problem solving I'm suggesting is the effort by high school students in a midwestern town who "took over" failing businesses as a school project. News reports of the venture suggest that they have made serious strides toward revitalizing the economy of their town and the curriculum of their school as well. The project gave them a stake in their place and reasons to learn that they did not have before.

A second example is a recent January term project at Mountain Lake, Virginia in which 35 graduate and undergraduate students and faculty from colleges throughout the United States representing a dozen disciplines worked for three weeks as a team of consultants to the owners of a resort hotel that has been losing money. The project was organized around problems of waste water, landscape design, energy efficiency — and ways to better integrate the facility with its locality. Although the outcome is not yet certain, the project has yielded several dozen good ideas to increase efficiencies, save money, reduce environmental impacts, and expand the mission of the facility around themes of place, ecological design, and environmental restoration. And it has provided students with a liberal education in ecological design in combination with the imperatives of financial solvency.

As a third example, I have been working with 30 students for the past year to develop a design program for an environmental studies center at Oberlin College that (a) heats and cools itself with natural energy flows, (b) is constructed from nontoxic and recycled materials, (c) recycles all organic wastes on site, (d) produces more energy over its lifetime than it consumes, (e) generates a positive cash flow, and (f) meets the highest aesthetic standards. We intended to ask twenty-first-century questions about the environmental consequences of our buildings; to explore possibilities for a future habitat that gives more than it takes from the natural world; to study how buildings might enable students to learn things to resolve the great issues of energy, resources, and food looming ahead. And what might be learned from the design, construction, and operation of the places where formal education takes place?

First, the process of design and construction is an opportunity for a community to deliberate over the ideas and ideals it wishes to express and how these are rendered into architectural form. What do we want our buildings to say about us? What will they say about our ecological prospects? These are not technical details, but issues of common concern that should be decided by the entire campus community. When they are so decided, the design of buildings fosters civic competence and extends the idea of citizenship.

Second, the architectural process is an opportunity to learn something about the relationship between ecology and economics. For example, how much energy

will a building consume over its lifetime? What unpriced costs do construction, maintenance, and operations impose on the environment? Is it possible to design buildings that repay those costs by being net energy exporters? If not, are there other ways to balance ecological accounts?

These questions cannot be answered without engaging issues of ethics. How are building materials extracted, processed, manufactured, and transported? What ecological and human costs do various materials impose where and on whom? What in our ethical theories justifies the use of materials that degrade ecosystems, jeopardize other species, or risk human lives and health? Where those costs are deemed unavoidable to accomplish a larger good, how can we balance ethical accounts?

Fourth, within the design, construction, and operation of buildings is a curriculum in applied ecology. Buildings can be designed to recycle organic wastes through miniature ecosystems, which can be studied and maintained by the users. Buildings can be designed to heat and cool themselves using solar energy and natural air flows. They can be designed to inform occupants of energy and resource use. They can be landscaped to provide shade, break winter winds, propagate rare plants, provide habitat for animals, and restore bits of vanished ecosystems. Buildings and landscapes, in other words, can extend our ecological imagination.

Fifth, they can also extend our ecological competence. The design and operation of buildings is an opportunity to teach students the basics of architecture, landscape architecture, ecological engineering for cleaning waste water, aqua culture, gardening, and solar engineering. Buildings that invite participation can help students acquire knowledge, discipline, and useful skills that cannot be acquired other than by doing.

Finally, good design can extend our imagination about the psychology of learning. The typical classroom empties quickly when not required to be used. Why? The answer is unavoidable: It is most often an uninteresting and unpleasant place, designed to be functional and nothing more. And the same features that make it unpleasant make it an inadequate place in which to learn. What makes a place a good educational environment? How might the typical "classroom" be altered to encourage ecological awareness? creativity? responsiveness? civility? How might materials, light, sounds, water, spatial configuration, openness, scenery, colors, textures, plants and animals be combined to enhance the range and depth of learning? My hunch is that good learning places are places that feel good to us — human scaled places that combine nature, interesting architecture, materials, natural lighting, and "white" sounds (e.g., running water) in interesting ways that resonate with our innate affinity for life.

My point is that the design, construction, and operation of academic buildings can be a liberal education in a microcosm that includes virtually every discipline in the catalog. The design of buildings is an opportunity to stretch the educational experience across disciplinary boundaries and across those dividing the realm of thought from that of application. It is an opportunity to work collectively on projects with practical import and to teach the art of "good work."

Conclusion

Solving real problems means broadening what teachers take to be their constituency to include communities in which educational institutions are located. It requires institutional flexibility and creativity, which in turn presuppose a commitment to make knowledge count for the long-term health of local communities and people. It requires overcoming the outmoded idea that learning occurs exclusively in classrooms, laboratories, and libraries. It requires acknowledgment of the possibility that learning sometimes occurs most thoroughly and vividly when diverse people possessing different kinds of knowledge pool what they know and join in a common effort to accomplish something that needs to be done. When they do, they discover ways to communicate that disciplinary education alone cannot produce. They quickly learn to distinguish what's important from what's not. And students and faculty alike discover that they are competent to change things that otherwise appear to be unchangeable.

We are not likely anytime soon to dispense with disciplinary knowledge, nor do I propose doing so. What I do propose is that we seek out ways to situate disciplinary knowledge within a more profound experience of the natural world, while making it more relevant to the great quandaries of our age.

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Gandhi's Postmodern Education

Ecology, Peace, and Multiculturalism Relinked

Madhu Suri Prakash

The Earth Summit generated greater media attention on the environmental crisis, but its Agenda 21 does not address the fundamental changes needed to sustain life. Education, particularly approaches that incorporate the educational theories of Gandi, can provide the necessary corrective.

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The Earth Summit in Rio de Janeiro last spring succeeded in focusing world attention on the gravity of the ecological crisis. Into the living rooms of publics disinterested in ecology, satellites beamed the Earth Summit debates on the threats to the survival and sustainability of life on earth that we face today.

Despite its phenomenal success in launching environmentalism onto the global political agenda, the Earth Summit has been called a "circus" by some, a "theatre on the Titanic" by others, because its Agenda 21 and other programs treat only the symptoms of the disease that threatens us with destruction and extinction (Sachs, 1992; "Whose Common Future?" 1992). These agendas call neither for a fundamental change in our ecologically unsustainable modern life, nor for a foundational reexamination and restructuring of the education that supports our life-threatening monoculture of modernity. Instead, the grandly orchestrated Earth Summit supports a rapidly burgeoning global ecocracy of technical experts, who scientifically manage and monitor the dying patient — our sick planet in the throes of deathly disease.

In doing so, the Earth Summit thoroughly minimizes the role of human scale communities — whose humble, autonomous initiatives identify local causes of the ecological crisis in their respective bioregions, as well as local solutions that exist close to home. By overemphasizing complicated legal issues, requiring specialized degrees in the environmental sciences, it completely underplays the civic and moral education of modern publics. Such education necessarily involves teaching the communal skills to live and learn again in ecologically literate and morally responsible communities.

If we follow the official path legitimized at the Earth Summit, we are doomed to the dark prospect Ivan Illich foresaw ten years ago: "the coming steady state society will be an oligarchic, undemocratic, and authoritarian expertocracy governed by ecologists." (Illich, 1982, p. 19). By accepting this path, the burgeoning environmental movement will, having climbed to the top of the global agenda at Rio de Janeiro, descend and disappear, absorbed and co-opted by the newest modern bureau-

cracy of ecocrats, aspiring to "manage" the earth and all its species, including humans.

There are, fortunately, other options. A very promising one was manifested in Rio de Janeiro itself, at the alternative Global Forum — an informal gathering of myriad grassroot community groups representing the diverse cultures of the world.[1] Engaged in exploring alternatives to the dominant paradigms in ecology, education, politics, and economics — and radically challenging monocultural modern paths and prospects — many of these groups are struggling to redefine what constitutes a good life. They seek to escape the standardized prescriptions of Western industrial societies, which have over the past 400 years attempted the global imposition of a universal way of life. The Global Forum's multitude of alternative quests for redefining cultural flourishing, social justice, and ecological sustainability do not proclaim a universal recipe or mold. Instead, resisting the unsustainable global agendas of the dominant societies, they urge the humble acceptance of a multiplicity of cultural notions of what constitutes a good life.

These culturally diverse alternative paths challenge the myths and premises of modernity — and the fundamental principles around which contemporary nation states are currently organized and governed. Articulated in Rio de Janeiro and elsewhere by both prominent constructive postmodernists and grassroots activists, these alternative paths reflect the day-to-day efforts of the world's social majorities: millions of people struggling both to survive the current crises of culture and ecology, and to regenerate their own ways of living, their own cultural spaces, their commons (Esteva & Prakash, 1992).

The official ecological mandate of the rising ecocracy implies no fundamental change in the educational system. In fact the educational lessons that follow from the Earth Summit's Agenda 21 supports business as usual: to continue delivering more and more uprooted professionals, properly homogenized and individualized persons in the mold of "homo oeconomicus." For such graduates fit well in the global design presently conceived for improving "resource management" on the planet earth, supposedly for "our common future."[2]

But for those who recognize that the ecological crisis challenges "the foundational beliefs of every [modern] cultural group," the educational implications for radical social transformation are "nearly overwhelming" — as C. A. Bowers (1994) recently indicated. Bowers, Berry, Illich, Orr, and other constructive postmodern thinkers resist the modern temptation to reduce the ecological crisis into a techno-scientific problem for more efficient global resource management. Instead, these thinkers reveal the crisis primarily as an educational challenge for moral and cultural regeneration. Suggesting that this crisis renders naked the unsustainability of modern life, they reconceptualize the very foundations of our culture and its mode of cultural initiation/education. Their foundational questions for this emerging educational theory include: What long-term cultural patterns are ecologically sustainable? What modes of education/cultural initiation are essential for regenerating the cultural ideals of social justice and ecological sustainability? How can we educate ourselves to make the transition from our unsustainable monoculture of modernity toward sustainable postmodern communities?

To address such questions today, we have no more compelling voice than that of Mohandas Karamchand Gandhi. Although it has been marginalized by the dominant discourse of professional educators, Gandhi's educational thought offers us some of the best critiques of modernity. After rigorous social experiments and extended reflections, long preceding the research of Schumacher, Ellul, Mumford, Illich, Foucault, Berry and other major deconstructionists of modernity, Gandhi warned his colonized people about the violence successfully hidden under this captivating mantle of modernity. He deconstructed the myths of peace and progress, civilization and social justice, virtuously worn by the modern state's educational system as well as its growing industrial economy. He revealed the ecological destruction and the annihilation of indigenous cultures of the soil that inevitably follows in the wake of modernization.

To resist this violence, Gandhi urged modes of education and production, of learning and living, that can curtail the cancer of our modern culture that has metastasized globally: through colonialism prior to World War II, and international development projects in the postwar period. Peace and modern progress are incompatible, Gandhi concluded.[3] For curtailing the modern disease, Gandhi designed educational institutions that unlink communities from the industrial economy. Rather than seeking to sustain industrial growth, Gandhi's nonmodern curricula and pedagogies nurtured learners' roots in their agricultural communities. Such roots would, Gandhi predicted, regenerate the earth's ecology, ravaged by progress and civilization. And they are essential for peace and social justice — for keeping alive the multiplicity of nonmodern cultures threatened to extinction by the globalized monoculture of modernity.

Committed to *ahimsa*, or nonviolence, Gandhi suggested resisting the temptations of the educational system, because its red shiny apple, of opportunities into the machine culture of homo oeconomicus, is rotten to the core. Gandhi's deconstruction of violent institu-

tions and technologies continues to offer an alternative perspective on every aspect of modern life: from the computer and other benign hardware of the contemporary classroom, to the microwave and the other benign hardware of the modern kitchen — not to mention a vast array of other productions, seductive in their promise of convenience and productivity; of time, labor, and energy saved for well-deserved leisure.[4]

This article examines the contemporary relevance of Gandhi's educational thought for living nonviolently, especially in these, the dawning decades of the postmodern "age of ecology" (Worster, 1977). This age is uncovering the magnitude of the modern damage done to nature and culture in general, and biological and cultural diversity in particular. More and more we learn of the threat posed to all life on earth today. This article explores Gandhi's conception of education for nonmodern peace, inspired by the oppressed "cultures of the soil," treading more gently on the earth. It studies how Gandhi's educational thought weaves together all of the emerging postmodern concerns: for ecological literacy, multiculturalism, and peace (including green peace). In exploring the rich wholeness of his educational theory and praxis, this article reflects on Gandhi's success in dissolving the fragmenting boundaries that limit and unlink the educational deliberations of most environmental educators, multiculturalists, postmodernists, and peace educators today. It concludes by identifying some contemporary thinkers whose theories and praxis reveal the relevance of Gandhi's educational ideals for making the transition today from our unsustainable modern societies toward sustainable postmodern communities.

Postmodern peace: Gandhi resoils education

Beyond the paradigm of modern industrial education. Deconstructing modern civilization in 1908, postmodern Gandhi wrote: "It is a civilization only in name. Under it the nations of Europe are becoming degraded day by day.... This civilization is such that one has only to be patient and it will be self-destroyed.... Civilization is not an incurable disease" (Gandhi, 1989, pp. 31–32).

Contemplating the social and ecological damage of this disease, especially for indigenous, subsistent, self-sufficient cultures, Gandhi wrote: "[We are] being ground down ... under the monster's terrible weight" (Gandhi, 1989, p. 32). Showing the way out of this oppression, Gandhi urged his people not to embrace the modern cultural institutions of the oppressors.

The struggle to end colonialism, to become independent, for the "intimate enemy" (Indians with colonized hearts and minds; Nandy, 1983) simply meant "English rule without the Englishman" (Gandhi, 1989, p. 27). It meant the equal educational opportunity to attend the English schools that allowed "natives" to occupy the privileged posts and professions created by the colonizers. However, observing the social injustices and ecological violence perpetrated by these professional posts and privileges, Gandhi initiated a nonviolent resistance against all the institutions of oppressors. Among these he included the educational system, exported worldwide from Europe. For the latter is indissolubly wedded to the oppressors' violent industrial economy. "God forbid that India should ever take to industrialism after the manner of the west. The economic imperialism of a single tiny island kingdom [England] is today keeping the world in chains. If [our nation] took to similar economic exploitation, it would strip the world bare like locusts" (Gandhi, 1988, p. 422).

Looking beyond modernity, postmodern Gandhi began experimenting with landscapes of learning for social regeneration that would not involve paying the "price of progress." "If India decides in the light of the need there is of fighting Europe with her own weapons, Industrialization, Capitalism, Militarism, and all the rest, in favour of making counterfeit Europeans of her children, soldiers, inventors of explosives, prostitutors of Science, forgetters of God, she must go forward on her path stern and open-eyed, whatever the disaster." The nonviolent alternative to this disaster, Gandhi reminded his people, is an education that is "truly Indian, and not a mere inferior prototype offered in the schools and colleges of the Government" of Western colonizers (Gandhi, 1980, pp. 30–31).

In the early decades of this century, Gandhi pioneered a philosophy of education for social and ecological peace and prosperity — a philosophy that emphasized cultural and environmental literacy. Both literacies are integrally interconnected in Gandhi's attempts to regenerate indigenous cultures and communities. What kinds of educational institutions can resist the ecologically and socially irresponsible production for modern overconsumption? What education can protect people from the violence of becoming extensions of modern machines? of becoming cogs in a vast, opaque technological system that no longer holds sacred anything in nature, not even human nature? Gandhi, like Ivan Illich and others who followed him, suggested that the quest for alternatives to the modern educational system must be inspired by the "informal" teaching and learning that evolved over centuries in subsistent indigenous cultures.

"The curriculum and pedagogic ideas which form the fabric of modern education were imported from Oxford and Cambridge, Edinburgh and London," observed Gandhi. "But they are essentially foreign, and till they are repudiated, there can never be" a new,

nonmodern education that is rooted in the indigenous culture and life of the people. Urging his people to regain their destroyed confidence in their own cultural wealth, ripping through their awe of oppressors' pedagogies and powerful technologies, "multiculturalist" Gandhi wrote that India "by the very fact of her long established and elaborated civilization had once the advantage of an educational system of her own ... fundamentally distinct from the Anglo-Indian type and from the pseudo-national type that is its descendent.... The greatest visible evil of the present educational method, in itself evidence of deeper defects, is, that it has broken up the continuity of our existence" (Gandhi, 1980, pp. 30–31).[5]

Because of their rude disregard for nonmodern systems of knowledge, modern classrooms, curricula, and pedagogies involve an arrogant break from the wisdom of the past. Horrified by this destructive break, Gandhi reached out to learn from the experiential, nonformal education of oppressed peoples' cultures: cultures that teach the civic or moral virtues for communal bonding; and cultures that perfect the skills of ecological sustainability (i.e, sustaining the natural world, which in turn sustains them).

What schools and colleges will nurture communal roots and virtues while developing skills for community subsistence and regional self-sufficiency? Presenting a challenge to the educational system of global empires on which "the sun never sets," Gandhi started his local educational experiments at the turn of the century. Beginning with his own children and those of a handful of nonviolent dissidents, Gandhi initiated his art of teaching through living and working in communities on the Phoenix and Tolstoy farms in South Africa. For Gandhi, learning and living were not two different phases of a sequence, nor two entities to be dealt with separately. Learning was a way of living; and to live was to learn. The central focus of life and learning in these Gandhian communities involved civic education: science, art, moral virtues, and spiritual strength essential for achieving communal self-sufficiency in food and the other basics of life.

Gandhi traced modern ecological illiteracy and social irresponsibility to contemporary classrooms. For these, observed Gandhi, separate learners from the soils that provide them with what they eat and wear, use and consume. They disembed students from their communities and ecological niches.

> Modern ... education makes young people unfit for any useful function in life. The vast majority of people that sent their children to the [modern] schools were agriculturists.... There is no doubt that the young people when they came back knew not a thing about agriculture, were indeed contemptuous of the calling of their fathers.... Almost from the commencement, the text-books ... never [teach a student] any pride in [his] surroundings. The higher he goes, the farther he is removed from his home, so that at the end of this education he becomes estranged from his surroundings. He feels no poetry about the home life. The village scenes are all a sealed book to him. His own civilization is presented to him as imbecile, barbarous, superstitious and useless for all practical purposes. His education is calculated to wean him from his traditional culture. (Gandhi, 1980, pp. 32–35)

Gandhi critically examined how the modern educational system destroys the hands, hearts, and heads of learners — while imported technologies continue this task of deskilling and cultural rejection initiated in the classroom. In doing so, they rob learners of the social knowledge and moral strength that come only with "bread labor": dignified manual work and intellectual work through which communities fulfill their own "basic needs," instead of exploiting others. Ignorant of the personal fulfillment and social flourishing that attends "bread labor," the graduates of our modern classrooms are "educated" to exploit the toil and "surplus" of the unknown oppressed of the world. Torn away from fruitful labor on their native soil, they become oppressors within the violent system of modern oppression.

Echoes of some of these early Gandhian concerns are voiced today in the writings of Freire and other proponents of critical pedagogy. Gandhian education, however, goes beyond Freirean and related pedagogies of the oppressed. For Gandhi's "conscientization" demands not only empowering dialogues about oppression, but also communal self-sufficiency in food, shelter, and clothing, essential to break free of modern structures of oppression. To escape the contemporary predicament of being either oppressed or oppressors, Gandhian education weans communities from their dependence on modern institutions — whose scale, complexity, and opacity prevents people from becoming "critically conscious" of how they perpetrate violence on ecology, community, and self. To resist such violence, Gandhi urged that our children "need, not slate and pencil and books, but simple village tools which they can handle freely and remuneratively. This means a revolution in educational methods" (Gandhi, 1980, p. 49).

The revolution of Gandhian education: Nai Talim. Gandhi's early experiments in resisting the Western oppressors' schools blossomed, after the 1930s, into an educational project for a nation struggling to free itself from the vice of colonialism. Called Basic Education or Nai Talim, its central focus became regenerating the sustainable, subsistent, indigenous cultures of the "oppressed" (i.e., those silenced by their "civilizers") and their colonizing classrooms into believing that they

were uncivilized, irrational, unscientific, underdeveloped, and uneducated (Sykes, 1988).

The educational revolution of Gandhi's Nai Talim fostered the craft skills that have allowed rural cultures to flourish outside the market economy for centuries. Economic self-sufficiency for community subsistence was Gandhi's cornerstone for achieving decentralized democracy and political autonomy: "As to the necessity and value of regarding the teaching of village handicrafts as the pivot and center of education I have no doubt.... I would begin the child's education by teaching [her] a useful handicraft and enabling [her] to produce from the moment [she] begins [her] training" (Gandhi, 1980, p. 50).

Teaching and learning one or more remunerative, nonindustrial crafts is Gandhi's "centerpiece" for teaching the skills to stay home firmly rooted in culture and soil, and to resist the modern workplace: industrial agriculture, modern factories, and offices — each engaged in smashing the traditional skills of sustainable agriculture and handicrafts. Wherever industrialization was introduced, these skills and systems of knowledge, reflecting centuries of experimental evolution, were obliterated into extinction within a few decades. The three *R*'s, the "centerpiece" of industrial education, observed Gandhi, aid and abet this deskilling. These modern *R*'s foster intellectual development more often than not totally divorced from the nurture of hearts and the traditional skilling of hands.

Gandhi preceded Dewey, Freire, Illich, Neill, and other philosophers of education in diagnosing the disease brought on by the disciplines of modern professionals. Abstract and divorced from the ecology and community that surround the classroom, these disciplines invariably produced various ills: psychological, social, and ecological. Gandhi deplored the internal fragmentation that occurs when separate bits of language, history, geography, and mathematics — divorced from their practical applications in solving the concrete communal problems of achieving self-sufficiency — are "banked" in the heads of learners. Internally fragmented by these classroom disciplines, teachers and students alike become "itinerant professional vandals" (Berry, 1987, p. 50), easily uprooted for industrial mobility, and emotionally detached from their native soils. Persons and places suffer equally as a result of this alienating mobility. The ecological destruction of abandoned places is accompanied by the psychosocial wreckage of the modern "homeless mind," bereft of communal roots. Seeking to overcome these ills, Gandhi wrote:

> What goes by the name of education in our schools and colleges in the cities today is in reality only intellectual dissipation. Intellectual training is there looked upon as something altogether unrelated to manual or physical work. But since the body must have some sort of physical exercise to keep it in health, they vainly try to attain that end by means of an artificial and other wise barren system of physical culture which would be ridiculous beyond words if the result was not so tragic. (Gandhi, 1980, p. 49)

Through a range of "remunerative" rural crafts, born of and rooted within a particular regional soil and ecology, Gandhi sought to repair the modern damage to persons and places. These nonmodern crafts, he demonstrated, reskill human hands; nurture affection in learners' hearts for their native soils; sharpen the mind and foster intellectual growth. This development of hands, hearts, and minds form the three *H*'s of Gandhian education. Through apprenticeships in useful occupations such as spinning, carpentry, and agriculture, Gandhi's three-*H* curricula and pedagogies overcome the intellectual barrenness not only of the academic curriculum, but also of modern vocational education. Gandhi's craft education was designed to provide the learner with "a thorough comprehensive knowledge relating to the theory of the various operations that he is to perform, and the use and construction of the tools that he would be wielding. He would not only develop a fine, healthy body but also a sound, vigorous intellect that is not merely academic but is firmly rooted in and is tested from day to day by experience" (Gandhi, 1980, p. 49).

Gandhi's craft education develops the dexterity of human hands in harmony with the growth of creative thought and imagination. Even as learners are intellectually challenged to fulfill their community's basic needs, their hearts also learn to cherish the soils that they are educated to husband with skill and care. They also learn to practice all the regional crafts from infancy. Through productive experiences that extend beyond the formal classroom into the field, pasture, and forest, Gandhian education weaves together the practical and the intellectual, the functional and the literary, the abstract and the concrete, the universal and the local. In pursuing the epistemic, aesthetic, and moral ideals of sustainable communities, Gandhi's craft education holistically weaves together the diverse range of disciplinary perspectives, including "a knowledge of mathematics and the various sciences that are useful for an intelligent and efficient exercise of [the student's] avocation. If to this is added literature [then the learner gets] a perfect well-balanced, all-round education in which the intellect, the body and the spirit have full play and develop together into a natural Whole" (Gandhi, 1980, pp. 49–50).

Gandhi's practical experiences for cultural and ecological literacy meet the highest standards of Deweyan experiential education. As for Dewey, so also for Gan-

dhi, environmental, multicultural, and peace education are not divided into separate disciplines or areas of study. Gandhi's conception of peace, multiculturalism, and environmental education escape their piecemeal treatment in the contemporary classroom. Teaching the three *R*'s, within the Gandhian scheme, is part and parcel of initiating learners into the "land ethic." And Gandhi's environmental education is as much civic, moral, or spiritual education, as it is the mastery of the sciences, the arts, and crafts:

> Craft, art, health and education should all be integrated into one scheme. Nai Talim is a beautiful blend of all the four and ... leads to the development of the mind, body and soul. The ordinary system cares only for the mind. [Nai Talim requires that] both the teacher and the pupil have to produce in the very act of teaching and learning. It enriches life from the commencement. It makes the nation independent of the search for employment. (Gandhi, 1968, pp. 504–505)

Instead of preparing people to leave their native soils in search of jobs within urban industrial and commercial conglomerates, Gandhi's concerns for peace, the environment, and cultural diversity are met through nurturing the roots of "dwellers of the land." People are taught the skills to stay home, to care for and husband their own small piece of the earth. Gandhi's education enriches and extends the indigenous traditions for growing and eating food; for fabricating clothes; for building and maintaining shelters; for perpetually regenerating the community's commons: a distinct bioregion with its distinctive plants and animals. Today, almost a century later, bioregionalists conclude that these skills alone offer us a genuine way out of our global environmental crisis.

In rooting people in their own indigenous cultural soils, Gandhi's aim is not to exclude learners from understanding or appreciating others' cultures. Such jingoism and cultural inhospitality remained alien to an educator who counted among his cherished teachers Ruskin, Tolstoy, Thoreau, Bondaref, and other Western thinkers. Gandhi humbly acknowledged how these thinkers first taught him to debunk the culture of the machine and economic growth. Later, having mastered the art of deconstruction through his own social experiments in nonviolence, Gandhi stood more firmly on his own cultural soil, while keeping open his doors to other perspectives. Gandhi's philosophy of multicultural education, eloquently expressed to Tagore in a letter of 1921, combined respect and hospitality to other cultures while nurturing strong indestructible roots in one's own traditions: "I do not want my house to be walled in on all sides and my windows to be stuffed. I want the cultures of all lands to be blown about my house as freely as possible. But I refuse to be blown off my feet by any" (Gandhi, 1980, p. 11).

Indians educated in modern classrooms are uprooted and blown away, observed Gandhi. Their own cultural roots atrophy, even as they become willing slaves of the alien monoculture of industrial growth and economic development. Gandhi found these classrooms to be as inhospitable to his multicultural ideals as they were to his conception of education for peace and ecological literacy. Gandhi's quest for diverse alternatives to global monoculturalism involves regenerating cultures of the soil. These cultures cannot be confined to the mastery of the modern printed text, nor to the walls of classrooms bound by knowledge and custom to the industrial workplace. To enter the heart of these nonmodern cultures, learners must till the soils that feed, clothe, and shelter them. They must learn their traditional cultural skills through direct, intimate, and profound engagement with the forests and rivers, the barns and pastures of their well-loved bioregions.

Today, within contemporary peace and liberation movements, we do hear recent echoes of some of Gandhi's century-old concerns for nonviolence, peace, and the regeneration of nonmodern cultures that have stepped more gently on our earth. These movements include recent attempts to bring multicultural, environmental, and peace education into the mainstream classroom. From Gandhi's perspective, these initiatives clearly do not go far enough, even though they do offer desperately needed preliminary departures from the narrowness and violence of modern education. For these curricula and pedagogies of multicultural, environmental, and peace education are, for the most part, confined to the four walls of the classroom.

From the perspective of Nai Talim, nonmodern cultural stories and songs, histories and social practices, "people's science" and arts when confined only to our classrooms involve a violent process of emasculation. When multicultural educators divorce students from direct engagement in their culture's daily productive endeavors for subsistent self-sufficiency, they perpetuate such violence. In doing so, they museumize these cultures; teaching about customs and practices rendered static through the processes of killing and mummification. From Gandhi's perspective, too much of what is being hailed today under the banner of multicultural education is tantamount to the mummification and museumization of cultures already killed by modern classrooms. Also from the perspective of Nai Talim, contemporary peace education tames Gandhian *ahimsa* (peace) — narrowing his conception of violence to focus principally on the brutality of industrial arms and military hardware, even as it embraces the structural violence of the modern educational system, and the other institutions and technologies that define modern culture.

Out-of-step Gandhi: Irredeemable traditionalist or prescient postmodernist?

Gandhian education is undoubtedly out of step with modern times. Is it, therefore, irrelevant to the educational challenges we face today, teaching as many of us do in the formal classrooms of America, India, and other modern nations? Is it best that we dismiss his educational experiments as the folly of an irredeemable traditionalist, ineffectually trying to turn back the clock by beating up on modern machines? Should we study Gandhi's ideas as part of the history of educational thought or cultural anthropology, rather than as reflections relevant for practical implementation in our classrooms today?

From the perspective of modernizers, the answer to all of these questions is an unequivocal yes. Seen through the lens of modernity, Gandhi's educational philosophy seems pathetically out of step with the march of modern times. His educational commitment to hitch learners to the bullock cart, when the rest of the world is speeding for takeoff into the space age, appears both foolish and dangerous. For those who see the world through modern eyes, Gandhi's educational experiments seem as quaint and anachronistic as the Amish way of life; or, worse yet, as misguided as the efforts of the Luddites, whose smashing of the early capitalists' machines failed so hopelessly to stop the global spread of industrial capitalism.

Revered as *Bapu* (father of the new nation) and *Mahatma* (large-souled one) for his spiritual strength in facing the violence of colonialism, Gandhi continues to be represented by his modern admirers as an "impractical," other-worldly saint, misdirected in his attempts to create a nation of ascetics. By casting him in this absurd role, it becomes legitimate for Indian professional educators and economic developers to marginalize the dated father altogether in their "practical" designs to educate their modernizing nation. Instead of following the pace Gandhi urged for living by nature's rhythms, these modernizers are hell bent on catching up with the "advanced" First World — which has already "taken off," leading our century's global race for economic growth and industrial progress.

Or is it the global race toward an ecological holocaust? A different perspective on Gandhian educational thought is presented by those who are aware that modern technological progress and economic development are ecologically unsustainable — that they pose, in fact, a threat to all life on earth. From nonmodern perspectives, the fact that Gandhi is out of step with modern times appears neither as fundamentalist dogma nor as an impractical traditionalist's nostalgia for the "pastness of the past" (Groeneveld, Hoinacki, Illich, et al., 1991, p. 59). Instead, his staunch refusal to follow the "victors" rather than the vanquished of the modern century demonstrates Gandhi's remarkable prescience and courage. It is proof of his indomitable pioneering leadership in helping us find the way out of our modern mess. After several decades of documenting our social and ecological destruction, Ivan Illich identifies Gandhi as the philosopher of the twenty-first century: far ahead of his time in more ways than one.

In 1908, Gandhi was obviously too far ahead for the comprehension of people dazzled by the displays of the modern technological system when he clarified that he had nothing against machines: as long as they do not pollute the earth and its inhabitants, or deplete and disrespect nature's resources; do not rob human hands, hearts, and heads of the virtues nourished in the excellent practice of communal crafts. Gandhi affirmed his support for technologies that do not aid the creation of economic monopolies; that do not turn humans into passive, addictive consumers of mass manufactured "goods," bereft of any sense of virtue or craftsmanship; that do not kill the interdependence, the civic virtues without which communities are transmogrified into consumptive suburbs, producing alienation and waste — including the wasted hands and lives called "human trash" by Wendell Berry.

Because he walked far ahead of moderns, postmodern Gandhi must wait his time and turn to be understood and accepted. Until modern minds are "conscientized," they will continue to misinterpret Gandhi's truth — and misunderstand his cultural hindsight. Just as in Gandhi's time, when the traditionalists, also misunderstanding him, martyred him for his moral foresight; for taking on the unpopular causes of India's untouchables, of Manchester's abused factory hands, of women, religious minorities, and other oppressed groups subjected to social violence.

Gandhi's challenge to modern culture and cultural initiation/education goes far beyond the boundaries of established American curricula of multicultural, peace, and environmental education. His beliefs do not fit the brand of postmodern thought that is academically fashionable today. Called "deconstructive," "eliminative," or "ultrapostmodernism" by David Ray Griffin (1992), this variety of postmodernism does not address Gandhi's concerns for ecological and social destruction; or for an education that will make whole again the hearts, heads, and hands destroyed by modern institutions and technologies. Instead, contemporary fashions follow Derrida, Habermas, some contemporary pragmatists, and other French thinkers in overcoming the modern worldview through an "antiworldview." Its focus lies on eliminating God, self, purpose, meaning, truth as correspondence, as well as the other epistemological and other philosophical wrongs of the Enlightenment project.

Gandhi, on the other hand, pushes us far beyond such postmodern deconstructions, into constructively repairing the modern damage of our own communities.

This Gandhian emphasis on theory and praxis, rooted in the practical concerns of regenerating our dying communities is, however, emerging in a school of thought which Griffin identifies as constructive or revisionary postmodernism. Still marginal to mainstream academic deliberations, revisionary postmodernism is inspired by Gandhi, as well as by Thoreau, Berry, Leopold, Illich, Mumford, Schumacher, and others struggling to move us beyond the modern world's mechanization, economism, nationalism, consumerism, militarism, individualism, and patriarchy. In doing so, revisionary postmodernism takes Gandhi's path, stressing that "the inclusive emancipation must be from modernity itself" (Griffin, 1992).

From global to local education: Berry and Orr join Gandhi

Among the most compelling contemporary articulations of the social ideals Gandhi espoused is found today in the writings of Wendell Berry. In *The Unsettling of America* (1986), *Home Economics* (1987), *What are People For?* (1990), and other essays and books, Berry grapples again and again, as Gandhi did, with the ecological and social ills of our modern culture. In his diagnoses for American society, Berry comes upon the same causes and solutions that Gandhi identified for India. And just as Gandhi delved deep into his own culture's traditions for educational solutions to the modern disease, so does Berry. Berry's hope comes from the Amish and other nonmodern, indigenous traditions. Reflecting on these, Berry reconceives education. Like Gandhi, he proposes that we teach and learn how to live again by a "land ethic"; to practice the civic virtues of sustainability; to engage in work, leisure, and learning with respect and reverence for Creation. Berry converges with Gandhi when he argues against "globalization" in favor of rooting in our local communities; for the reunion of food culture and agriculture; for the regeneration of the commons; for rerooting learning in the concrete reality of learners and teachers. For Berry, as for Gandhi, what is locally appropriate for the planet, what is well learned in the local place may be useful in other places. Berry rejects, as did Gandhi, the "abstract knowledge" that has no application or meaning in any specific place, administered under the professional assumption that it is universally valid.

In Berry's strong poetic voice, we hear the contemporary echoes of Gandhi's commitment to the practice of craftsmanship, with its epistemic, aesthetic, and moral virtues or excellences. Unerringly, Berry arrives at the agricultural and other related crafts that form the focus of Gandhian educational thought. And Berry's crafts and craftsmanship, like Gandhi's, promise all the "basics" we need for survival and flourishing, while also healing the rapidly spreading modern damage.

Berry's education also rejects all aspects of our contemporary consumptive lifestyle, beginning with our food. Critically examining the food of "industrial eaters," Berry's gaze, like Gandhi's, uncovers the oppression perpetrated by our modern education for industrial eating. He vividly describes the deskilling of human hands, the moral alienation of hearts and heads in classrooms which divorce us from the fields that feed us; the deathly damage to rural communities and their soil, air, and water, brought on by industrial agriculture's "unsettling of America." Berry mourns, as Gandhi did, our modern wastelands: today's toxic air, water, and soils; our anomie and rootlessness. Yet, even as he carefully sees all the devastation missed by modern eyes, Berry exemplifies Gandhi's spirit, offering us at once "a difficult hope" and an education that nurtures the roots of caring stewardship; that teaches us to become once again responsible dwellers of the land rather than its uprooted, displaced, irresponsible residents.

But how do we get from here to there? from our current classrooms for uprooted mobility and ecological irresponsibility toward those for communitarian attachment and rooting in the soils of local communities? David Orr is among the most important postmodern philosophers of education who seriously accepts Berry's educational challenge for teaching the skills and knowledge of dwelling in nonmodern communities. In doing so, he successfully brings Gandhi and other pioneering postmodernists out of the musty, unused books of campus libraries into the contemporary classrooms of America; and further still, beyond classrooms, into our local communities, working to undo the ecological and cultural damage of the modern project (Orr, 1992).

Orr's curricula and pedagogies liberate learning from the confining walls of the classrooms that constitute our "nice" campuses. The distorted focus of the latter lies in the mastery of knowledge and skills needed to supply ourselves with consumables from "places around the world that are largely unknown to us, as are those to which we consign our toxic and radioactive wastes, garbage, sewage, and industrial trash" (Orr, 1992, pp. 126–127). These classrooms teach us to work, shop, bank, and commute in structures that are the "architectural expressions of deplacement" (Orr, 1992, p. 127).

Heading us closer and closer toward the path that Gandhi pioneered, Orr proposes educational experiments that heal the modern rape of nature; that teach us to live more and more on local resources; that help us to achieve autonomy from the modern Goliaths: our gar-

gantuan institutions and technologies. Orr's aim, like Gandhi's, is to revive the lost communal virtues: of rooted care; of responsible belonging; of caring justice and equity; of temperance and frugality governing our pursuit of individual and social freedom — along with the virtues of grounded hope, sufficiency, autonomy, and self-sufficiency necessary for "strong" democracy.

Conceived many decades after Gandhi's death, Orr's educational experiments confront a different context from the one that Gandhi struggled to repair. The social and ecological deterioration Orr confronts today is many times worse than it was in Gandhi's India a century ago. In contemporary urban, suburban, and rural America, the crafts that Gandhi sought to protect from extinction on the Indian subcontinent have more or less vanished. Our classrooms have completed the job of obliterating even the faint memory of these craft skills and knowledge from our social consciousness. And the sustainable communal crafts of agriculture, animal husbandry, cloth making, and artisanship have been killed by their unsustainable industrial replacements. The industrial economy now controls not only most of America's fields, forests, and pastures, but also the mouths, minds, and intestines of its "industrial eaters," its employers and workers, its teachers and learners. This control, Orr reveals, leaves us ecologically illiterate and socially irresponsible.

Educating for ecological literacy and moral virtue, Orr attempts, as Gandhi did, to break free of this destructive dependency and control. He identifies a rich range of readings for "deconstructing" modernity and, in addition, many concrete practical first steps in the praxis of creating postmodern communities that exemplify the Gandhian ideals of simple, autonomous living.

Delineating the first of many concrete steps in praxis, Orr's curricula and pedagogy bring together the college or school community in a critical study of all that it consumes and wastes. Applying all of the disciplines engages teachers and students in studying how their food is produced, transported, and distributed. Civic education or ecological literacy, for Orr, involves radically changing the community's patterns of eating. It helps the community move toward food that is grown "within the horizon" and away from that which travels on the long-distance wheels of agribusiness. Orr's education supports the craftsmanship of local farmers whose agriculture depends more on the knowledge and skills of local hands, than on fossil fuels, chemicals, and other ecologically destructive industrial inputs.

Orr's interdisciplinary civic education or ecological literacy stretches teachers and learners to reform every aspect of our unsustainable, contemporary campus life. It embraces dimensions that current academic conventions decree to lie outside the purview of classroom and education: How can we transform our decorative campus lawns into orchards and gardens that help localize food consumption? How can we use our excreta for appropriate agricultural uses, rather than producing "waste" that requires ecologically dangerous "treatments"? How do we alter our consumption so that we exploit others less and depend more on ourselves? Orr's critical pedagogy does not address these questions "in the abstract." Instead, it demands authentic praxis for transforming the daily life of the educational community.

Through critical theory and praxis, Orr leads the way in his attempts to bring educational ideals like Gandhi's to life on the contemporary American campus. He successfully demonstrates that our classrooms and campuses can become an important part of the transition toward sustainable, human scale, postmodern communities — which constitute the aim of Gandhian education.

Conclusion

The Earth Summit in Rio de Janeiro revealed governments' coaptation of the ecology movement that emerged from the grassroots, mobilized by communities across the earth during the past twenty years. It unveiled, more than any other thing, the widening chasm between governments' global environmental agendas and the local agendas being formulated by people attempting to live on the human scale, within communities striving for self-sufficiency. The most "developed" nations and other dominant actors at the Earth Summit nakedly displayed their determination to override the preservation of natural and cultural diversity in order to protect established national or multinational economic interests.

While the dominant Earth Summit actors struggle to preserve the status quo, others engage in giving birth to a new social era. Among the latter are constructive or revisionist postmodern thinkers, writing from the margins of the academic establishment; and the millions who constitute the world's social majorities, living on the margins of the globalized economy. No longer expressing their social hopes in the conventional discourse of Right and Left, they are turning to social thinkers/activists such as Gandhi for the inspiration and guidance they need in their present struggles. Claude Alvares noted: "Gandhi is fast returning to the consciousness of the world.... Two years ago, when 50 Nobel Prize-winners issued a statement asking the poor of the world to disobey all laws except those related to fundamental rights, they could only cite Gandhi for inspiration" (Alvares, 1983, p. 49).

The dawning postmodern era offers the pertinent frame of mind for examining Gandhi's educational con-

tributions. Gandhi pioneered the social philosophy that can take us beyond the bloating modern global ecocracy. He posed the educational challenge that calls not for more environmental experts, but for teaching the civic and moral virtues without which we cannot have sustainable communities. Concerned about cultural and ecological regeneration, Gandhi resoiled education so that "the cultures of silence" will actually live, breathe, and speak for themselves as opposed to being merely mummified for intellectual analyses in modern classrooms. Resoiled, rooted, and therefore alive, Gandhi's cultural and environmental literacies prevent the ecological violence and cultural damage that our contemporary classrooms perpetrate. Weaving into one web the arts of modern and traditional pedagogy, Gandhi's education strengthens the nonindustrial cultures of the soil. It "empowers" the disempowered to better resist the dominant modern culture of the globe: engineered by the laws of the industrial economy, while disrespecting nature's laws for natural and cultural diversity, for social harmony and ecological flourishing.

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Notes

1. On the Global Forum, see NGONET UNCED Feature, June 1992, Rio de Janeiro; *Third World Resurgence*, issues 26 through 31, dated August 1992 through January 1993; *Bruntland Bulletin*, issues 12 through 18, dated June through December 1992; Tokar, Brian. (1992, September). After the "Earth Summit." *Z Magazine*.

2. For a critique regarding the myth of "our common future," see "Whose Common Future?" *The Ecologist*, 1992. Also see Vandana Shiva, "The Greening of Global Reach," *The Ecologist*, Vol. 22, No. 6, Nov./Dec. 1992.

3. Regarding this conclusion, also see Illich, Ivan. (1982). The de-linking of peace and development. In *In the mirror of the past*. London: Marion Boyars.

4 For one of the best contemporary critiques of the computer and other technologies of efficiency, see Berry, Wendell. (1990). Why I am not going to buy a computer. In *What are people for?* San Francisco: North Point Press.

5. Gandhi was not alone in seeing how the modern classroom transforms the "native" into a mind colonized. British educational reformers knew exactly what they must do to win the hearts and minds of the colonized so that they "freely" embrace the culture of the colonizer.

> It is only by infusion of European ideas that a new direction can be given to national views. The young men, brought up at our seminaries, turn with contempt from the barbarous despotism under which their ancestors groaned, to the prospect of improving their national institutions on the English method.... So far from having the idea of driving the English into the sea uppermost in their mind, they have no notion of any improvement but such as rivets their connection with the English.... There is no class of our subjects to whom we are so thoroughly necessary as they whose opinions have been cast in the English mold — They are spoiled for a purely native regime: they have everything to fear from the premature establishment of a native government.... (Trevelyan, Sir Charles E. [1853] A paper on the political tendency of the different systems of education in use in India, submitted to the Parliamentary Committee. Quoted from Vora, Rajiv. [1988, July]. *The state of India: Nation state, society, and environment in India*. Paper presented at the International Workshop on Energy and Rural Subsistence Sector in Nairobi, organized by the Environment Liaison Center, Lucknow.)

The Unity of Learning and Living for Ecological Sustainability

Gandhi's Educational Philosophy in Practice

Dilafruz R. Williams

Lok Bharati, a Ghandian educational institution in Gujarat, India, is an exemplary model of the applications of Ghandi's philosophy of nonviolence through the practices of moderation and enoughness.

Author's Note: This study was supported by a Faculty Development Grant awarded by Portland State University, which enabled me to visit a number of Gandhian institutions in India. My thanks to Madhu Suri Prakash, for reintroducing me to education in India. Kevin O'Sullivan has inspired me with his Oaxaca Project, signifying that the Gandhian way promises the preservation of indigenous cultures and their subsistent economies struggling to resist the onslaught of Western modes of development; for this I express my gratitude. I am equally grateful to staff members and students of Lok Bharati, whose Gandhian path and destination present a sane educational alternative to the otherwise fractured and violent lives of moderns.

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Apeksha (wish), *Trupti* (contentment), *Asha* (hope), *Kavita* (poetry), *Leela* (greenery), *Rajashree* (wealth of kingdom), *Gita* (song). These female students — their names and their being — symbolize and capture for me the essence of an educational practice for ecological sustenance embedded in Gandhian philosophy. I met them at Lok Bharati, a residential rural institution of higher education in India, which was one of the sites for my study of Gandhian schools.[1] Lok Bharati's vitality of life in the fields, the tranquility of the living and learning environment, and the contentment of the participants — students and faculty — for the moderation and simplicities of living, nourished my otherwise restless spirit, shocked at the violence of the communal riots simultaneously raging all over India.[2]

Despite the fact that the country was rocking with rage, Lok Bharati maintained a peaceful environment; the students and their educators continued with their daily educative endeavors practicing the Gandhian principle of nonviolence through their connectedness with the earth and through living the virtue of enoughness. As I reflected on my visit and the interactions with students and their educators, I realized that the *wealth* of Lok Bharati's "kingdom" lay in its reverence for rural life, with its ecological sustainability and economic sufficiency. Here, I was to discover the *hope*, the *poetry*, and the *song* that Gandhi desired for India: her rural life and people, her agriculture, her soils, her ancient wisdom cherishing indigenous cultures and their economies.

My visit to Gandhian institutions began as part of an educational quest; having read and studied Gandhi's theories of *nonviolence, simplicity, and enoughness*, as an academic exercise (see Prakash & Williams, I was curious to find out how his educational philosophy was practiced in modern times. Given the role of educational institutions in perpetuating the modern thrust for urbanization and consumerism, how could Gandhi's thoughts, conceived decades ago, be alive in practice? I wondered. I discovered that not only are

grassroots communities actively engaged in re-visioning and living the Gandhian way, but there are a number of schools and universities in India that are grounded in the Gandhian philosophy. Because most of these have a strong foothold in Gandhi's home state of Gujarat, where the medium of instruction was my own native language, Gujarati, I chose to visit schools there.

An institution of rural higher education, Lok Bharati is located in Sanosara in southern Gujarat, India.[3] Inhabited by 10,000 to 12,000 people, Sanosara has a 100% literacy rate. Among Gandhian institutions, Lok Bharati and her feeder schools have a reputation for being atypical: The campus area, which had been a wasteland before Lok Bharati's founding in 1953, has been transformed into rich fields and orchards. Education is earthed at Lok Bharati, rooted in the craft and economy of agriculture. Spread over 400 acres of land that includes horticultural farms, thousands of fruit trees such as mangoes, chikoos, and lemons, along with dairy farming and pasture land, Lok Bharati is surrounded by more than 50 villages. Considered an "experiment" in education, Lok Bharati is recognized as being "a unique model that could inspire and transform educational institutions everywhere."[4]

As a residential institution founded four decades ago by Gandhian affiliates, Lok Bharati enrolls about 500 to 600 students, one-fifth of whom are female. It offers formal courses leading to degrees in rural studies and in teacher education, and nonformal courses addressing the day-to-day living experiences of villagers, many of whom are farmers. Students enrolled at Lok Bharati typically have their K–12 experience in schools that operate on Gandhian educational philosophy. Their mother tongue is Gujarati. Affiliated with Bhavnagar University, which awards degrees, Lok Bharati has autonomous status. Being a self-sufficient institution, with some grants obtained through the central and state governments, no student — whether rich or poor — is required to pay a tuition fee. Instead, 350 to 400 hours of service are *required* in the form of "socially useful productive work" assigned in a variety of settings: farm, dairy, laboratory, sanitation, nursery, kitchen, dispensary, and so on. All students are also required to live in the villages and work with farmers in the fields, in order to gain first-hand practical knowledge and hence education. Moreover, adhering to Gandhi's concern for social justice and welfare of the least well-off members of society, students are expected to participate for 20 days in *adivasi* camps in tribal areas.

The curriculum, pedagogy, and living environment at Lok Bharati reflect the practice of Gandhi's educational philosophy. Here I met educators who not only practiced moderation but were dedicated to the spiritual centering that Gandhi hoped all education would enhance. The calmness exhibited in relationships and in the environment at Lok Bharati was a welcome surprise, since, being an urbanite, I was accustomed to jarring sounds produced both by humans and machines. Instead, I found soothing *educative* experiences that rejuvenate me as I reflect on them, many thousands of physical miles away: the walks through the mango groves giving a sense of fertility arising out of barrenness; the fresh smell of the raw earth; the delicate newborn calf reaching for its mother's udders as the cow's kind and gentle eyes permitted me to intrude her privacy; the magnificence and hues of the peacock's feathers as he proudly danced to lure his mate; the towering windmill, aloof and solitary in the fields; the symmetry of the vegetable gardens, with their rich green sprouts and leaves; the cotton fields with the pods almost ready to explode, but waiting patiently for the cotton to be picked and woven; and the beauty, serenity, and shyness of the youth — their simplicity, their cleanliness, their contentment, their convictions, their hymns and songs, and their unpretentious lives. Having experienced Lok Bharati thus, I realized that I had been on an ecological journey of profound significance in grasping the practice of Gandhi's educational philosophy.

Gandhian principles in action

Although known to the world as a spiritual leader for his philosophy of political nonviolence or *satyagraha*, Gandhi is little-known for his equally important educational philosophy and program presented in *Nai Talim* or New Education (Gandhi, 1953; Solanki, 1958). At present, the Gandhian schools in India are also called Basic Schools. While many of his ideas have filtered into mainstream education throughout India, in the form of "work experience," and "social reconstructionism," to Gandhi these would have appeared as mere tokenism rather than the fundamental restructuring of education that he had designed in *Nai Talim*.

In tracing a connection between the colonial educational system tied to the industrial economy and its vagaries, endless wants, exploitation, consumption, and cultural domination, Gandhi totally rejected the Western model of education and its other institutions rooted in organized greed, oppression, and violence. Instead, he drew upon the vernacular wisdom of India, as he designed *Nai Talim*, that was to revitalize India's villages, her crafts, her economy, her subsistence. Gandhi's nonviolent education, therefore, requires that learning and living be fundamentally integrated. For Gandhi, learning and living are not separate activities: Learning is a way of living; and it is only in the context of living well, in the present, that we learn. Learning must inform the way we live rather than intellectualize

life, argues Gandhi. The central focus of life and learning in Gandhian education, then, is the development of skills and knowledge of nonviolence through moderation and ecological sustenance. This is to be achieved through communal self-sufficiency in food and other basics of life, and the all-around development of the individual — body, mind, and soul. Mere intellectual engagement degenerates one's spirit, Gandhi declared. Hence, his education requires that learners grow not only intellectually and physically, but also morally and spiritually.

Gandhi makes economic self-sufficiency for community subsistence his cornerstone for achieving nonviolent decentralized autonomy. This demands teaching and learning one or more remunerative, nonindustrial crafts, such as spinning and weaving, tool making, agriculture, dairy farming, and village handicrafts, that nurture affection in learners' hearts for their native soils, and their culture. These rural crafts are the centerpiece of Gandhian education for teaching the skills to stay home, firmly rooted in one's culture and soil, one's bioregion, one's soul. Gandhi, thus, presents a stark contrast to the traditional modes of education: Instead of emphasizing the three *Rs*, his education stresses the three *Hs* — hand, heart, and head. Gandhi's program of craft education seeks to give new value to manual labor — the labor of India's "untouchables" or, as Gandhi called them, *harijans* (God's children). It stems from Gandhi's concern for social justice as well as for reconnecting individuals to their soils. By emphasizing the dignity of labor, Gandhian education teaches self-respect and self-confidence to people whose life and culture are linked to the soil. He struggles against the contemporary notion that work is something one does after graduation. Since work is an essential part of living, it must be reintegrated with learning and education. In rooting people in their own indigenous culture, Gandhi's aim is to enable the silenced cultures to live and flourish again.

I discovered that the educational principles embodied in Gandhi's philosophy undergird Lok Bharati's very essence and existence. Operating humbly yet with intensity, Lok Bharati's faculty members and students have embarked on an educational venture that is rooted in the practice of moderation, simplicity, and the dignity of labor. Here, rural life itself provides the holistic learning environment centered around agriculture. And, engagement in service is a "normal" expectation of education; without this "we cannot comprehend what non-violence means in practice,"[5] one of the founding fathers of Lok Bharati shared with me.

Moderation, simplicity, and the dignity of labor

"There is enough in this world for everybody's need: there isn't enough in this world for anybody's greed" (Gandhi, quoted in DasGupta, 1989, p. 189). This Gandhian principle demands that the way one lives should reflect what one's needs are. This principle of differentiating between *needs* and *wants* pervades the environment and life of Lok Bharati. The faculty members, who have living quarters for their families on campus, are committed to the Gandhian way of simple living and practicing the virtue of enoughness. I found their minimally furnished "hutments" to be extremely clean and serene, with limited possessions and accessories. A knotted rope cot, a couple of chairs, a table, and perhaps a desk. No more than two to three rooms, including the living room and the kitchen, in each dwelling. Few utensils, but clean. The simple living is complemented by the typical Indian hospitality: An outsider is welcome to join the family in vegetarian meals without any fuss of special invitations. I was often greeted with warmth and invited to what the faculty's family considered their "humble abode."

Being a residential school, Lok Bharati's campus also houses separate living quarters for male and female students. A Westerner, habituated to undergraduates and graduates moving into dormitories, expects each student to establish the material comforts of life in the new university or college setting. A shocking contrast awaits observers at Lok Bharati; for instance, Apeksha, Rajashree, Gita, Asha, and many other female students are housed together in a large "hall," about 15×25 feet. Two sides of the hall are lined with lockers — each about $2 \times 3 \times 3$ feet — where *all* of a student's possessions fit, except for the bedding. Each student's bedding, made up of a sheet and a *rajai* (similar to a cotton durrhee), is rolled up, resting against the wall. The living quarters have stone walls and floor, and a brick tiled roof. There is no furniture, whatsoever. No carpets, nor rugs. No pictures on the wall. No accessories. Students sit on the floor in their dorms. Some classrooms have desks, others don't. It is not unusual to see classes and assemblies conducted in the open air. I often sat under the shade of a tree when I spoke with groups of students. Most important, classes are held in the field, at the tool shop, or at the dairy farm, where students actively learn.

True to the Gandhian philosophy, only *khadi* (handspun cotton clothing) is worn by faculty members and students alike.[6] Furthermore, there are no janitors for the students or for the faculty. Instead, in taking care of the communal toilets, or sweeping, cleaning, and washing — with hands rather than with the help of machines — all are taught the dignity of human labor. Faculty and students take turns to cook meals for the

entire community. One day, I joined a group of female students for lunch. We sat in a circle on the ground, in the shade of cotton clothes that had been hand-washed and were drying on clotheslines. Plain metal *thalis* (plates) provided no distraction from the delicious, hot, vegetarian food, as students chatted, and seemed content that they could rest after the afternoon meal, before taking off for their student teaching assignments in the surrounding schools. I noticed that since the participants were engaged in the production of food and the making of meals, they cherished what they ate.

Wouldn't such simplicity and moderate living, with lack of amenities and accessories result in dullness? one might wonder. How could life without television, blaring stereos, gaudy posters of rock stars, make-up, personal and living accessories, be tolerable? Amazingly enough, I did not see boredom at Lok Bharati. Rather, there is a sense of purpose that seeps through the air in this community living environment, a purpose that is dense, intense, and potent.

Rural life as a learning experience

Communal living on Lok Bharati's campus provides a practice of learning that goes beyond mere book knowledge. Furthermore, village life itself provides the critical and essential experience of learning. In Gandhian terms, the art and craft of rural living must be learned from those who live in rural areas. Thus, at Lok Bharati, students are actively engaged with farmers and villagers from surrounding villages, as they learn about agriculture, economics, horticulture, dairy farming, and other crafts — going beyond the mere technical knowledge obtained in the traditional classrooms. Through cooperative extension institutes, students are also placed for extended periods of time in the villages, so as to obtain thorough knowledge in the particular rural craft of their interest. Experimentation in hybrid seed production, grafting, soil conservation, plant breeding, biogas production, farm planning, budgeting, regional marketing, governance through *panchayat* participation, and so on, becomes a mutually undertaken venture between the rural dwellers and the students and faculty members.

Applied research on crop production and better yield, or dairy farming, is shared with farmers. Thus, students and farmers actively pursue the implications and implementation of research knowledge. In particular, Lok Bharati's efforts have yielded: better farming techniques; new crop varieties and yields of bajra, groundnuts, wheat, and cotton; and dairy farming for higher milk yield.

Students who prepare to become teachers are placed in K–12 schools in the surrounding rural communities. Many of these rural schools serve as feeder schools for Lok Bharati and other Gandhian institutions of higher education. Because of their systemic approach to education, these schools and universities maintain continuity in practice derived from Gandhian philosophy of education. Thus, for instance, teacher preparation students at Lok Bharati take pride in their placements, having themselves experienced the kind of education that they are committed to undertake as future educators. Students in these schools belong to rural communities; hence their education and experience are naturally rooted in the craft and economy of agriculture.

Primary School and Middle School 'Learning Buddies' work on a cooperative art project under the watchful eyes of Academic Specialist Pat Sandler. Photo courtesy of Terry Moore *(See pp. 44–55).*

The experience of rural living and learning extends further, in terms of the notion of *service*, of profound significance as a nonviolent undertaking for Gandhi. It is only through serving the poor and the oppressed that we serve God and hence practice *ahimsa* or nonviolent living, believed Gandhi. Lok Bharati's students have volunteered and helped during major national and regional calamities such as droughts, earthquakes, floods, famines, and communal riots. Further, a study of graduates of Lok Bharati indicates that many have devoted their lives to public service in variety of settings: agriculture, state and national government, educational institutions, and in the fight for social and economic justice for the disadvantaged.

Thus, at Lok Bharati, there is commitment to a way of life — the only way of life — embedded in agriculture that the faculty and students feel is nonviolent and ecologically sustainable. Being self-sufficient, Lok Bharati does not have to rely on external superfluities for survival — physical and spiritual. Here one sees and feels humbleness along with an intense sense of purpose and dignity. In the process of assembling daily to sing hymns, spin yarn, and share political concerns, or immerse oneself in rural living and learning, Gandhi's educational philosophy is solidly rooted in culture and agriculture. An astonishing tranquility prevails at Lok Bharati; the songs of nature are naturally showered if one is willing to listen in silence to the chirping birds, the running waters, the plowing of the fields, the slow, deliberate movements of bullocks with bells around their necks, and the rich hymns that pour forth as an expression of Lok Bharati's rural soul.

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Notes

1. I visited pre-K through grade 12 institutions, too, in order to decipher Gandhi's educational philosophy of *Nai Talim* in practice.

2. On December 6, 1992 Hindu fundamentalists had demolished the Babri Mosque at Ayodhya, the claim being that the mosque was built at the site of the Hindu god Rama's birthplace. Hindu-Muslim riots followed throughout India and in many parts of the world.

3. Much of the description and information provided here is derived from pamphlets, personal observations, and interviews with staff members and students at Lok Bharati and at one of her feeder schools — Gram Dakshina Mandir at Ambla, near Sanosara.

4. Quoted from a pamphlet entitled, "Lok Bharati: A Unique Experiment in Education." Bhavnagar: Saraswati Press, n.d.

5. Interview on December 11, 1992, with Manubhai Pancholi, faculty member, and member of the board of trustees at Lok Bharati.

6. At all Gandhian institutions, daily, students and faculty members spend time in public assembly, spinning. For Gandhi, spinning and weaving were symbolic activities, providing solidarity and support for India's indigenous people whose craft and economy were slashed rudely by the British imposition of foreign cloth on Indians.

Earth Origin

Grounding Environmental Education in Jean Gebser's Developmental Theory

Louise Chawla

The twentieth-century Swiss philosopher Jean Gebser proposed an alternate conception of development that conserves all forms of effective relationships with the earth. An integrated education can intensify children's experience of the natural world through multiple approaches to learning, community dialogue, and cooperation — and through direct communication with the land.

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Darwin wrote himself the cautionary note, "Never use the words higher and lower" (Singer, 1981, p. 62). As a naturalist, he separated his theory of natural selection from the idea of moral improvement. Natural selection promotes some random physical and behavioral changes over others: those that survive, survive. Survivors are not necessarily better than those whom they replace.

Deeply rooted as hierarchy is in human culture, however, many have been less careful than Darwin in their use of *higher* and *lower;* and their evaluations have permeated developmental theory. As Stephen Jay Gould (1977) chronicled in his book *Ontogeny and Phylogeny,* in the nineteenth century, when upper- and middle-class Western men were exploiting empires and multiplying capital profits and scientific discoveries, they made their abstract rationality the endpoint of evolutionary and individual development. Against this standard, preliminary stages — which characterized women, children, the illiterate, and colonized people — were defined by their deficits.

The legacy of this bias persists. In the field of cognitive development, Piaget (1929) stressed the separation of the self from the external world and the acquisition of logicomathematical reasoning. In moral development, Kohlberg focused on the acquisition of abstract principles of justice (1984). Following Freud, theories of ego development have stressed increasing individuation and the young child's separation from his or her mother and surroundings (Greenberg & Mitchell, 1983). In these contexts, emotional bonds of connection with particular people and places characterize "lower" levels of psychological functioning that are described as "less developed." Despite these authors' disclaimers that they do not intend to discredit preliminary stages, the structure and vocabulary of their systems communicate that the endpoints of ontogeny *are* better. To anyone concerned about human relations with the earth and theoretical foundations for environmental education, this heritage presents dilemmas.

Behind these hierarchies lie not only the legacy of the nineteenth century, but more than 2,000 years of Platonic and Christian ambivalence regarding the body and the earth. This Platonic-Christian tradition acknowledges the beauty of the cosmos and the harmonies of nature; but it also observes that the natural world is the realm of mutability, carnal temptation, pain, and death — from which the soul should seek deliverance. Through rationality, the soul gains control over nature and its own passions, and prepares itself for liberation into pure spirit after death.

Prevailing developmental theory, therefore, inherits a Western tradition that has not called the earth home. Worse, this tradition has permitted the destruction of species, ecosystems, and the cultures of colonized people. How can environmental education advance within this context? This article introduces the work of the twentieth-century Swiss philosopher Jean Gebser, who reassessed prevailing Western assumptions regarding historical and individual progress by the standard of "the good of the whole": a whole that integrates human well-being into the biosphere. In this context, Gebser proposed a nonhierarchical but explicitly evaluative phenomenology of development that provides a productive foundation for the reconceptualization of environmental education.

A vision of transformation

Born in Prussia in 1905, Gebser lived through two world wars and cataclysmic events in politics, economics, the sciences, and the arts that marked the disintegration of the modern world and the emergence of a time of transition still known as *postmodern* for the lack of a settled form. Given this flux, Gebser rejected outmoded schemes of individual and social progress and dedicated himself to defining new potentials for individual and global reintegration. On one side, he faced Spenglerian visions of a return to "blood and earth" that elevated emotion above reason. On the other side, visions of the rational engineering of society also proved menacing. As an alternative, Gebser articulated a qualitative, holistic phenomenology of experience, including human relations with the earth.

Gebser's biography reveals the urgency of his need to conceive a new *telos* for our age and the breadth of his resources (Feuerstein, 1987, pp. 21–32). After witnessing Hitler's Brown Shirts in Munich, he left Germany in 1929 to begin the fugitive life of many intellectuals of his generation. Moving through Italy and France, he eventually settled in Spain, where he secured a job with the Ministry of Education and befriended Spain's creative avant-garde, including Lorca, whom he translated into German. During the Spanish Civil War, his apartment in Madrid was bombed; and like Lorca, he was arrested, and would have been killed were it not for friends' intervention. He fled to Paris, where he was welcomed by the circle of Paul Éluard, Louis Aragon, André Malraux, and Pablo Picasso, and where he met leading innovators in all of the arts and sciences. As the Nazis moved south through France, he fled again, crossing the Swiss border two hours before it closed. During these years, Gebser observed the rationalist dream of inevitable social progress through cumulative scientific discovery explode.

The supremacy of rationality at the expense of all other forms of experience, Gebser concluded, would destroy life on earth unless an alternative appeared. Whereas he spent his early years absorbed in art and literature, in his later years he worked with many of Europe's leading biologists, physicists, sociologists, and psychotherapists, becoming familiar with efforts in diverse disciplines to reconstitute the guiding ideas of contemporary civilization. From Switzerland as his center, he lectured throughout Europe and in India, the Far East, and North and South America, becoming familiar with non-Western cultures as well. For many years he was a lecturer at the Institute of Applied Psychology in Zurich, and in 1967 he was awarded an honorary chair in Comparative Civilizations at the University of Salzburg. He died in 1973.

In the 1940s, more than 20 years before the beginning of the environmental movement, Gebser discerned that the crisis facing civilization was ecological as well as political and intellectual. In his preface to his masterwork, *The Ever-Present Origin*, he wrote:

> The crisis we are experiencing today is not just a European crisis, nor a crisis of morals, economics, ideologies, politics, or religion. It is not only prevalent in Europe and America but in Russia and the Far East as well. It is a crisis of the world and mankind such as has occurred previously only during pivotal junctures — junctures of decisive finality for life on earth and for the humanity subjected to them. The crisis of our times and our world is in a process — at the moment autonomously — of complete transformation, and appears headed toward an event which, in our view, can only be described as a "global catastrophe." This event, understood in any but anthropocentric terms, will necessarily come about as a new constellation of planetary extent. (Gebser, 1985, p. xxvii)

Understanding a catastrophe to mean a turning point whose outcome is unclear, and having a sense of life that is not anthropocentric, Gebser remains in advance of most analysts of the intensifying global crisis today. In *The Ever-Present Origin*, he incorporated his environmental observations into a comprehensive phenomenology of the history of consciousness in the arts, the social sciences, and the natural sciences. This article

will follow the environmental thread within Gebser's book and discuss its implications for education.

The mystery of origin

Not only did Darwin's theory of natural selection fail to assure that later stages of evolution will be better than preceding ones, but ever since the publication of the *Origin of the Species* in 1859, Darwin's critics have observed that the radical differences separating various species — differences in structure and behavior that transcend the gradual accumulation of variations — remain the great conundrum that Darwin and others have failed to solve (Taylor, 1983). As a friend of biologists such as Adolf Portmann, Gebser was aware of the intricacy of nature's forms; and as a friend of physicists such as Werner Heisenberg, he was also aware that, on a fundamental level, nature's processes take unpredictable leaps that remain essentially mysterious.

According to the environmental philosopher J. Baird Callicott (1989, pp. 157–174), quantum physics — in whose ferment of ideas Gebser participated — provides the most hopeful epistemological model for postmodern relations between people and the earth. As Callicott has summarized its implications, twentieth-century science has shown that all knowledge is physical, whether it travels through light, sound, or chemical or mechanical forms of energy; but correspondingly, knowledge of the physical world is irreducibly mental. In quantum theory, subject and object cannot be separated: as shown by Bohr's principle of *complementarity* (the act of observing a system disturbs it, so that no simple unique description is possible), or Heisenberg's principle of *indeterminacy* (we cannot specify a particle's speed and position at the same time). In simplest terms, mind is matter, matter is mind. This postmodern conclusion is Gebser's point of beginning.

Callicott (1989) notes that the consequence of quantum theory is that it is impossible to describe nature apart from observers' interactions with it. Environmental education, however — like other subject areas — usually continues to assume outdated modern dichotomies: Cartesian subject versus object, Humean fact versus value, Kantian mental categories versus things-in-themselves. These dichotomies are often combined, paradoxically, with a physical monism which assumes that the mind is a physical substance.

Later sections of this article will explore how these unexamined assumptions limit environmental education. At this point, these limitations may be summarized by two generalizations. First, environmental educators teach that we are part of nature, but often without reflecting profoundly on what this union means. Second, environmental curricula commonly perpetuate the supremacy of rationality by analyzing natural systems as mechanisms whose mysteries can be solved and controlled through data collection and mental and technological ingenuity. As Gebser (1985, pp. 305–306) observed, however, as we have attempted to rationally and technologically manage nature, the consequences of our actions have increasingly escaped our control.

Gebser, in contrast, began with a spiritual openness to the presence of the world's mystery. He acknowledged the mysteriousness of what modern dualism and physical monism fail to explain: life and consciousness. He termed this mystery *origin*; and as his title *The Ever-Present Origin* observes, he considered it the ever-present foundation of existence. Familiar with Asian philosophy, he acknowledged similarities between his sense of origin and the inexpressible All of Hinduism and Buddhism. He also noted affinities between this fluid field of interchangeable matter and energy and the discoveries of postmodern physics.

Gebser accepted that, as a mystery, the nature of origin is also a risk. "Life is forever menaced by chaos," he noted, "and must restore balance with every intake of breath (Gebser, 1962, p. 6)." Whereas Western tradition has reacted to life's risks by dividing spirit from body, or by reducing everything to matter, Gebser joined spirit to body through a leap of trust. "Uncertainty is inherent in life," he added, "but so is trust" (Gebser, 1962, p. 104). Just as the breath restores balance without deliberate rational control, Gebser considered connection to the body and the earth a foundation for sustaining openness to origin. In his own case, for example, he learned to trust his relations with air, water, earth, and the fire of life through his boyhood enthusiasm for diving. He wrote later of this experience: "I lost my fear in the face of uncertainty. A sense of confidence began to mature within me which later determined my entire bearing and attitude toward life, a confidence in the sources of our strength of being, a confidence in their immediate accessibility" (Gebser, 1985, p. xviii).

Gebser's trust in connection with the body and earth as a source of spiritual as well as physical strength, and his commitment to living on earth as a place of potential spiritual as well as physical fulfillment, make him an appropriate "patron philosopher" for environmental education. On the foundation of his trust in origin, he proposed a profoundly altered vision of development and potential new relations between humanity and the planet.

Structures of environmental consciousness

In addition to his sense of origin, in which body and mind are interdependent, Gebser assimilated the postmodern principle that reality transcends any single

description. As physical chemists Ilya Prigogine and Isabelle Stengers have summarized the implications of Bohr's principle of complementarity to the effect that no simple causal description of a system is possible: "The real lesson to be learned ... consists in emphasizing the wealth of reality, which overflows any single language, any single logical structure. Each language can express only a part of reality" (1984, p. 225).

In the same spirit, Gebser proposed that, in the course of individual and cultural history, people experience the ever-present origin through five fundamentally different *Gestalten*, or structures of consciousness; yet origin remains more, the earth and its beings more, and the potentials of consciousness more, than any single *Gestalt* can contain. Gebser also believed that some structures of consciousness can never be expressed through language at all, no matter how articulate it may be. They are only known in the physical immediacy of direct contact with particular people and places.

As archaic, magic, mythic, and mental structures of consciousness are described below, they may sound familiar, as they fit into conventional stage models of social and individual development. Gebser avoided the hierarchies of existing models, however, through three radical departures.

1. Although he allowed that certain forms of consciousness may dominate at certain periods of civilization or ages of an individual, each structure is an ever-present potential of human nature. Because together they constitute our human nature, all are always either latent or expressed.

2. Each form of consciousness contains effective and defective possibilities, evaluated by the standard of the good of the whole: our whole as human beings, as societies, and as members of the natural world. By this qualitative standard, no one form of consciousness is inherently better or worse than another.

3. To familiar forms of consciousness, Gebser added a fifth, the *integral*, which he perceived to be emerging out of the upheaval and transition of the twentieth century: the possible constructive outcome of the current global catastrophe. (Considering the uncertainty inherent in life, Gebser called the outcome *possible*, not *necessary*.) The following sections will summarize Gebser's phenomenology of each form of consciousness, and its implications for environmental education.

Archaic consciousness. In 1960, psychoanalyst Harold Searles published *The Nonhuman Environment in Normal Development and Schizophrenia*, which remains the most comprehensive consideration of the role of animals, objects, and the built and natural world in ego development. In it, he charged his colleagues with ignoring this important subject because they feared and denied their embeddedness within the physical world. Like Freud (1961), they assumed that the unavoidable human tragedy is that we are part of nature, and that despite all our constructions of culture and civilization, we return to nature in the end. Environmental educators emphasize that people are part of nature, but often without acknowledging the ambivalent emotions this fact evokes. Gebser reversed this tradition of denial by affirming what he termed *archaic* consciousness.

Arche is Greek for "beginning," or "origin." Gebser referred to archaic consciousness as "identity with origin" and the "wisdom of origin," when people do not yet differentiate themselves from their surroundings (Gebser, 1985, p. 43). It is the consciousness of animals and infants, which we may reenter in later life in repose, reverie, and unthinking routine when we are quietly absorbed in our body and our place. Healing from illness or trauma, we draw on it as we gather the body's reserves of strength. In childhood, archaic consciousness is a primary element of play as we lose ourselves in mud puddles, up trees, under bushes. Rather than finding this foundation "merely physical," Gebser observed that it is our base of connection to the earth and the universe, and therefore to the "wisdom" of nature and human wisdom regarding our part in nature.

The relevance of archaic consciousness to environmental education is suggested by research into the background of committed conservationists and environmental educators (Chawla, 1989; Peterson & Hungerford, 1981; Tanner, 1980). In surveys and interviews, when these people have been asked about the sources of their commitment, they almost invariably mention an inspirational model — often a parent or teacher, *and* a wild or semiwild place where they played or explored freely over extended time. Beginning with this archaic bonding with a favorite place — whose value was affirmed by a respected adult — respondents were motivated to dedicate themselves to a general care for the natural world.

This research, combined with Gebser's interpretation of archaic consciousness, suggests that if we want the message that we are part of nature to evoke bonds of trusting identification, then free access to natural places needs to become the first principle of environmental education. Valuable as day and weekend field trips may be, they are not a substitute for uncounted childhood hours of immersion in the natural world.

Even in urban areas, access to natural areas can be provided through the design of housing, parks, and green corridors (Chawla, 1991, pp. 187–228). *Another Way of Learning* by Moore and Wong (in press) and the publications of the Learning Through Landscapes Trust[1] describe how macadam schoolyards can be

transformed into networks of game areas, gardens, and natural areas that become not only laboratories for science teaching, but also natural playgrounds and community parks, cherished by children in and out of school. Sobel (1992) has collected examples of teachers in rural areas who have taken their classes outdoors to appropriate favorite places where they return again and again, to build dens and huts, to play imaginatively, or just to be silent and absorptive.

Magic consciousness. Whereas archaic consciousness is merged in identity with origin, magic consciousness apprehends the power of this connection. In Gebser's terms, in magic consciousness an emerging sense of self "is dispersed over the world of phenomena," which makes it necessary to speak of magic "union" with the world rather than archaic "identity" (Gebser, 1985, p. 46). At its best, Gebser noted, magic is an unforgettable, vital experience that "simultaneously 'realizes' the unity of the world and the fundamental unity of the individual with the world" (Gebser, 1985, p. 251). Therefore, it is a spiritual experience.

These qualities of magic consciousness are beautifully recalled in a response to a British survey regarding childhood religious experience. A woman gave the following account of an episode that she was able to date to the age of five:

> My mother and I were walking on a stretch of land in Pangbourne Berks, known locally as "the moors." As the sun declined and the slight chill of evening came on, a pearly mist formed over the ground. My feet, with the favorite black shoes with silver buckles, were gradually hidden from sight until I stood ankle deep in gently swirling vapor. Here and there just the very tallest harebells appeared above the mist. I had a great love of these exquisitely formed flowers, and stood lost in wonder at the sight.
>
> Suddenly I seemed to see the mist as a shimmering gossamer tissue and the harebells, appearing here and there, seemed to shine with a brilliant fire. Somehow I understood that this was the living tissue of life itself, in which that which we call consciousness was embedded, appearing here and there as a shining focus of energy in the more diffused whole. In that moment I knew that I had my own special place, as had all other things, animate and so-called inanimate, and that we were all part of this universal tissue which was both fragile yet immensely strong, and utterly good and beneficent. (Robinson, 1983, p. 32)[2]

According to a survey of autobiographies (Chawla, 1990), these ecstatic experiences are usually associated with natural settings, as in this memory. If the daily routine of contact with the natural world through archaic consciousness is like the mist in which the child sets out, then the magic experience itself is like the brilliant fire that illuminates the child's connection with the world. Like archaic identity, magic unity is something that adults can *provide for* through access to the natural world, but not *provide*. And although magic experience may be recalled in words, it cannot be entirely communicated in words, but must be silently felt in communion with a place.

The primary legacy that autobiographers attribute to these experiences is a fund of calm and strength — such as Gebser associated with his boyhood diving (Chawla, 1990). The British respondent continued: "The whole of this experience has ever since formed a kind of reservoir of strength fed from an unseen source, from which quite suddenly in the midst of the very darkest times a bubble of pure joy rises through it all, and I know that whatever the anguish there is some deep centre in my life which cannot be touched by it" (Robinson, 1983, p. 33). If the nature of origin is a risk, then experiences of this kind make being part of nature an occasion for trust, not fear.

As a traveler through Asia and Africa and a scholar of anthropology and parapsychology, Gebser accepted that magic consciousness contains real potentials of telepathy, clairvoyance, and action at a distance. In this respect, his ideas parallel those of Joseph Chilton Pearce in *Magical Child* (Pearce, 1977). Gebser added, however, that awareness of the self and the world's power makes magic fear possible: "fear that man is compelled to rule the outside world — so as not to be ruled by it" (Gebser, 1985, p. 51). In this defective form, he found magic consciousness prevalent in the modern world's destructive mass psychologies, obsession with machines and technology, and limitless drive to transform all of the earth's resources into objects of human desire.

These defective forms of magic are formidable obstacles to the care for the earth that environmental education seeks to instill. Perhaps they may be most effectively counteracted through the opportunities that committed environmental activists and educators recall: extended positive experiences in natural areas — where magic at its best may happen — combined with models of care.

Mythic consciousness. As magic consciousness silently intuits the vital powers of the world and personal powers of action, it makes possible empathy, sympathy, associative thinking, analogy. Mythic consciousness gives these perceptions voice. Gebser (1985, p. 65) noted that the words *myth* and *mouth* come from the Sanskrit root *mu*, "to sound." As the sound of the mouth reveals emotions, it initiates consciousness of an internal psychic life of sensibility and imagination.

Whereas archaic and magic consciousness are silent and can only be provided for, mythic consciousness can be expressed in the community of the classroom through freshly created poetry, story, song, dance,

drama, and visual art. How to combine the exploration of local places with the shared expression of vivid experiences through the arts has been detailed by dedicated teachers such as Mollie Jenkins (1973), Elwyn Richardson (1964), and Grace Rotzel (1971). Left to themselves, children often act out mythic consciousness in their play.

Gebser (1985, p. 66) observed that whereas magic experience is timeless and boundless, myth takes place in cyclic time: to the rhythm of the in-breath and out-breath, the heartbeat, day and night, the seasons, the generations. In Gebser's use of the term, *mythic consciousness* notices "complementarities," or distinctions that are relationships: child and parent, earth and sky, light and dark, silence and sound, winter and spring. Therefore, it expresses natural patterns, along with the emotions and associations that they evoke. Applied to places of strong personal feeling or group identity, it expresses a sense of sacred place. In its defective forms, myth becomes propaganda and empty ritual.

The novelist George Eliot wrote, "We could never have loved the earth so well if we had had no childhood in it" (1914, p. 38). By encouraging mythic consciousness, teachers allow children to express their love — and sometimes fear. Without opportunities to express the sensations, emotions, and imagination that the natural world and places of personal and community meaning inspire, environmental education runs the risk of being shallow, and deficiently mental.

Mental consciousness. Mental consciousness includes paradox, perspective, abstraction, rational reflection, and self-assertion — all of which may take effective or defective forms. Its ruling term is *ego, I*; its ruling sense is sight. Therefore, it is an essential part of a sturdy sense of competence and self-esteem, evident in children's and adolescents' exultations as they grow into self-possession: "I am!" "I can!" "I am here, and I *see* you there, watching me." One of the primary goals of outdoor challenge programs and school and community environmental projects is to cultivate this healthy sense of self.

In a review of research, Hungerford and Volk (1990) conclude that people take responsible environmental action when they combine environmental sensitivity, acquired through extensive positive outdoor experiences, with in-depth knowledge about issues, personal investment, and "empowerment variables" (such as an internal locus of control and knowledge and skill in using action strategies). In Gebser's terms, knowledge about issues and empowerment exemplify effective mental consciousness.

With careful historical detail, Gebser (1985, pp. 73–97) traced how these general powers of ego and reflection have taken the mental-rational forms that have dominated the Western world since the Renaissance. He observed that when these rational powers of calculation and technology combine with defective egoism, nature — and other people — are reduced to mere mechanisms to manipulate and consume. The sense of self becomes concentrated in the mind, behind the eyes, in isolation from the other senses, the community, the world. Mutually exclusive dualities replace mythical complementarities, magical union, and archaic identity. Three-dimensional space replaces sacred place; and time's arrow — an irreversible quantified line — replaces cyclic time. Decisions are made in abstraction: in meeting rooms and offices distant from the people and places that decisions impact.

This mental-rational thinking dominates schools as well as other modern arenas. It is evident in schools' physical structures, which box children in, separating them from other ages, their communities, the natural world. It is evident in the division of work into independent subjects, under the rule of the clock, and the atomization of knowledge into pieces of information. It is evident in a primary reliance on numbers and the written word. Under these conditions, the map replaces the territory. Tests on this dematerialized material encourage competition rather than cooperation.

Although environmental education at its best is one of the most effective counterforces to this "education in isolation," environmental curricula are not immune to it. At its worst, environmental education becomes another body of information to be tested, or suggests that it is adequate to know nature through videos and computer screens. Defective curricula describe ecosystems as mechanisms that can be analyzed, monitored, and managed through data collection and technological ingenuity alone.

These defects in practice are supported by defective educational theory. Prevailing hierarchical models of development epitomize modern mental-rational thinking. A Kantian division between the mind and ultimately unknowable things-in-themselves underlies Piagetian theory, fostering a focus on the mind's own operations, and the acquisition of advanced logicomathematical operations as an end in itself. This Kantian division also underlies Kohlberg's curriculum of moral development, which is directed toward the acquisition of abstract principles of justice apart from connections to particular people, animals, and places. Modern dualism also takes the form of Humean separation of fact and value, which is assumed by values-clarification exercises in which students articulate the values that they assign to a morally void nature, apart from experience with the consequences of their ideas and actions for actual places.

The philosopher Gareth Matthews notes that these hierarchical models can encourage condescension for children (Matthews, 1982; 1987, pp. 175–190). A five-year-old's questions about whether or not it is right to stick an earthworm on a fishhook, for example, become easily dismissed as mere childhood animism — if one has learned Piaget's theory that young children are not yet capable of a correct understanding of life and consciousness, or Kohlberg's verdict that they are not capable of advanced moral thinking. Matthews, like Gebser, observes that life and consciousness are more profound mysteries than modern hierarchies assume.

Integral consciousness. Gebser suggested that movement from mental-rational to integral consciousness could be effected by shifting attention from quantification to qualities of time. Each structure of consciousness implies a different awareness of time, which involves a different relationship with nature. The goal of integral development, according to Gebser, is "not a freedom *from* previous time forms, since they are co-constituents of every one of us; it is to begin with a freedom *for* all time forms" (Gebser, 1985, p. 289). To archaic presence, consciousness *is* the world with which it is identified. In magic timelessness and boundlessness, all things are related. Mythic consciousness observes cyclic patterns and complementarities in nature. Mental consciousness calculates environmental consequences against the scale of quantified time, using data and technology which, under the guidance of integral wisdom, become instruments for good instead of harm.

What characterizes integral wisdom? "What is decisive," Gebser said, "is to 'know' in any given instance where and how to act passively or actively, where and how to make things happen or let things happen to us": to know when "our natural, magic creatureliness" should follow the natural flow of events, when "our mythical and psychic being" should respond to formative images, when "our observant, mental-abstracting nature" should orient as well as pass judgment on events (Gebser, 1985, p. 138). By beginning with a commitment to the good of the *whole*, and valuing effective qualities of time associated with archaic identity, magic union, mythic significance, and mental acuity, we approach an understanding of the whole, and therefore of its good.

In practice, freedom for all time forms requires that we take time for each. The magnitude of current environmental problems may seem to compel urgency: more facts, more fixes, more technology more quickly. Gebser (1985, p. 300) noted, however, that this mental urgency has been notoriously blind to the mythic imagination and magic emotion that remain part of human nature, often taking defective forms when unadmitted, and perverting the best-laid mental plans.

It is possible to find time for all forms of consciousness if time extends through all parts of the curriculum and beyond the school day. The potential for this extension exists, as the integrated day and the extended day become commonplace ideas. If they merely mean injecting more math throughout the curriculum or keeping children in school for longer hours, however, the potential will be lost. Because environmental education is inherently holistic, relating students to their community and the natural world, it invites a larger vision in which the arts as well as rational skills extend throughout the curriculum — and learning extends beyond the classroom into the schoolyard and into resource centers and natural areas throughout the community.

An integral education

Rather than mentally quantifying time, Gebser observed, integrality intensifies time. In environmental education, this intensification involves at least three dimensions: multiple approaches to learning, dialogue and cooperation, and direct dialogue with nature.

As students explore subjects through *multiple approaches*, including extensive experience of actual places, artistic expression, and mental analysis, each approach deepens their quality of observation and understanding overall. As students work to improve their communities and show stewardship of natural resources through community *dialogue and cooperation*, their insight and action skills broaden through the contributions of each participant. As they engage in a *dialogue with nature*, they learn to notice how converging layers of time compose their community streets and landscapes.[3]

Models of integral education already exist. Kim Dovey (1984), for example, describes the operation of Preshil, a progressive Australian grade school where the school grounds are intensively used for outdoor study, gardens, animal keeping, hut building (and demolishing), and free play and exploration. When a decision was made to build a hall for school and community events, an architect parent, teachers, staff members, and children worked closely together to evolve a plan sensitive to both their need for a community meeting place and their attachment to the site. They learned to evaluate progress through quality of time — not a fixed timetable — as they shared creative spontaneity and ingenuity, technical skills, budget limitations, and cooperative decision-making. The result was a process of flexible, incremental design as the community took time to assess the consequences of each decision, and a product that excelled anyone's original expectation. The principles of work that Dovey distills would apply to numerous environmental projects.

Another example of integral work is learning to "read the landscape," which David Orr (1992) advocates as an essential part of ecological literacy. As students learn how the landscape itself is a record of geologic and evolutionary passages, human labor and culture, natural cycles, and other lives, time changes from a mental measure imposed on the world to a fertile story related by the world. Learning this language, Orr observes, requires patient, disciplined research, and on-site study that cannot be rushed. As students engage in this dialogue with a place, they learn to ask, and hear, in Wendell Berry's words: "What is here? What will nature permit here? What will nature help us do here?" (quoted in Orr, 1992, p. 91).

These examples may be described as postmodern as well as integral, in the sense that they encourage students to observe how the world forms the contents of their mind and the boundaries of their body — even as their mind and body perceive and shape their world. They also suggest how environmental education can be extended into an integral aspect of life within and outside of school, woven into the design of schoolyards and neighborhoods, explored through the arts as well as the sciences, advanced in communities of dialogue and action as well as individual study and observation, and combining the generations in a common effort "for the good of the whole." In this process, students gain an intensity of living, as they use their different human powers; and in the communities and landscapes of which they are a part, they learn to preserve and create an intensity of natural and cultural beauty and diversity.

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Notes

1. The numerous publications of the Learning Through Landscapes Trust are available from Southgate Publishers, Glebe House, Church Street, Crediton, Devon EX17 2AF, Great Britain.

2. The author is indebted to David Sobel for identification of this passage.

3. For the insight that dialogue is of the essence of integrality, the author is indebted to Ingeborg Winter, architect and friend of Gebser. Algis Mickunas, a translator of Gebser, observed that integrality includes learning to see time in the landscape.

Seeking the Sacred in Everyday Life

Cynthia Thomashow

Three stories of children and adults rediscovering and experiencing connections by being "present" to the natural world.

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I am sitting cross-legged at the base of a huge hemlock. I am meditating, trying to clear my mind of all extraneous thoughts. The car has to be taken in ... dinner preparations made ... a course planned for Thursday. I try to let thoughts sail through and not anchor anywhere. It's not easy.

I am waiting. Waiting for the flash of inspiration I have read about. Waiting for the Great Spirit to talk to me through this tree. Waiting to realize my spiritual connection in one brilliant moment of insight. I have prepared. I've read books on meditative practice and Native American rituals. I have taken workshops in shamanism to learn how to journey into the dimension where power animals roam and communicate great truths to the humans who venture there.

I want to experience connection and immersion in its purest sense — to fill this empty space I feel inside me. I assume that what is missing is spiritual and that it includes an understanding of my relationship to nature. I want to graft a sacred and profound understanding of the earth, its creation, and its mysteries onto my understanding of who I am. I am searching for my environmental identity ... the connection to nature that wasn't nurtured in school ... wasn't a part of my upbringing ... and is hard to find in the work world. I am trying to understand, after all these years, just how I am connected to other species and to the earth.

I sigh. Deep within, I know that finding this deep connection to the natural world is not going to come in a lightening bolt. The process of connecting involves immersion in the natural world, quieting the everyday chatter and being present. And I have to discover the way my relationship with the earth is played out in my everyday actions. How is my relationship with nature manifested in the decisions I make at the grocery store, how many miles I put on my car, the trash I send to the landfill? How can I bring what I do every day into line with the more elusive dream of the sacred connection?

There are a few stories from my life that serve as a guide. These stories help me understand how basic life experiences can illuminate my relationship to nature. I hope that telling these stories will inspire others to use their everyday experiences as guides to understand their connection to the earth.

The first story tells of a hike my family took to celebrate a Jewish holiday. Rituals and celebrations fill the

lives of people. Family birthdays, religious observances, and other holidays are beginning to include outdoor activities or references to our ecological nature. I find that weaving my love for nature into sacred cultural events increases the significance and meaning of the event.

The second story was drawn from an experience I had in the local elementary school. I try to spend time in my son's classroom, introducing topics I think are important for children to think about. These topic range from works of art to environmental awareness. This story tells about an interaction that elucidated the level of awareness many children have of the world in which they live.

The third story is a tale of four children playing in the woods. They invited me to join them. In fact, they asked me to bring my drum and lead a meditation. Children have a knack for shutting out the rest of the world while they are playing. These children immersed themselves in nature using their senses, their openness for the woodland mysteries, and their ability to be fully present in the moment.

A holiday out-of-doors ...

We are celebrating the beginning of the new year, Rosh Hashanah, by taking our children up Mt. Kersarge in southern New Hampshire. It is a short walk full of intention ... a panoramic view of the White Mountains ... the pure joy of being outside when the alternatives are a staff meeting and a classroom. It is a new place to explore. A family time to think about the customs that attend a religious holiday. My husband wrestles with the guilt of childhood edicts. "One will attend temple services on religious holidays. One should listen to the words of holy scribes and religious leaders while addressing the questions of spirituality." I turn to him sensing the struggle. "This is our temple. It has always been our temple." I say.

We want to be outside ... to celebrate the coming of the new year in a favorite place. For me it is the only true temple. It is the original place of worship. Pines and hemlocks tower overhead. Maples and oaks color the ceiling and the floor with yellows, reds, and oranges. Passion. Fire. Leaves are falling. Trees are closing down. Sap runs below the surface to wait for the new year, for spring. The trees rid themselves of leaves as we attempt to rid ourselves of the year's sins. Their year of production is ending. Our new year is beginning. My daughter comments, "Why do we start our new year at a time when everything green is dying? Why begin a new year when the winter is coming on?" This is a good question. "Living things are not dying," I say. "They are pulling inward. They are dropping the old and resting before beginning again. Maybe we need to turn our thoughts inward too. Review the activity of the year for a while before putting ourselves out in the world again. Reflect. Throw away what didn't work and begin anew." The trees have a good idea.

The woods become a sanctuary. The holy teachers are all around us. The wind is moving through leaves. Whispering, rushing, rousing my instinct to listen for meaning. In the desert, ancient wanderers listened to the stars. The stars told the truth. People knew how to listen to a world that included more than human voices. The secrets of listening to the earth and the heavens have become a mystery to us. Now we tend to learn more about how to measure, describe, and predict their movements. Record keeping and calculations seem to have distanced us. Humans have become separated by a wall of hypotheses and information.

Ancient peoples listened to the wind. It spoke to them. As the wind moved through the trees it enabled the trees to talk. The "two legged, upright people" from those cultures could hear the trees talk because they knew how to listen. I have to ask my daughter to stop singing jingles in order to hear the wind. I have to ease the weight of my footsteps to distinguish the nuances in the flow and ebb of the breeze. I am waiting to hear words. To hear a familiar conversation. I am waiting for the trees and the wind to speak in English. When this realization hits me it nearly knocks me over in its foolishness. "Don't you know how to talk?" I say inside my head. How presumptuous. I bow my head and listen. Ears open. Mind open. Free of expectation. It moves me to tears.

The walk up is steep and short. Rock faces are slippery from last night's rain. The moss is luminescent. Club pine runs along the forest floor. The evergreens have kept the floor clear of undergrowth. It is a magical setting. Deep browns, strewn boulders, running streams, and moss. Jacob tells of how he pretends the boulders are mountains, each crack a valley, the moss are trees and the puddles large lakes. "From a fairy's perspective," he comments. The spirits of the woods are real, even at eight years old. His connection to the mysteries is still a possibility.

We break through to the ledge. We enter an open space, leaving the dark woods behind us. The wind is whipping our hair and chilling our sweating bodies. We move quickly to the top. The summit. Only to be met with microwave dishes, a tower, and electric lines buzzing with human-made power. *Yuck!* I use the technology I am reacting to in such a negative way. I want my radio but I don't want to see the metal dishes on the mountain. More tensions. What do I need to be happy? What have I learned to want to be comfortable? Hidden sources of technology ... the hidden costs of human comforts. This is one of the lessons for the year to come. What is the hidden cost of what we want in order to be comfortable? All of us need to think more about this.

Ninja turtles, Barbie dolls, flights to Europe, cable television — what are the costs? At what expense do I procure my happiness?

Exploring a bit, we find a cozy, semiprivate spot in which to settle. Jessica presses herself into an outcropping. Jacob hunkers down between rocks and shrubs. We feast and gaze out over the fall landscape and up into the White Mountains. "Is that Washington?" "That's got to be Lafayette." "I see Adams!" We want to be able to identify where we have been on camping trips. We want to know this landscape as our own and feel comfort in our relationship with it. Our family touches, forms a circle, laughs, and plays. This is holiday time. This is what being outside brings us. We explore the world together. We affirm the beauty of the land together. We build our sense of place by being in it together. Family is our sanctuary, the mountain is our temple, and we are worshipping.

I stuff my pocket with leftover pieces of rye bread. On the trail I break the pieces into crumbs. We carefully climb down the rock faces we scurried up. It takes thought and time. All of us are more quiet in our concentration. Mitchell and I are looking for the stream that marks the halfway point. This is the place of ritual. We will each take a handful of crumbs, assign them our "sins," and cast them into the stream to cleanse ourselves. We want to relieve our spirits of regretted actions. We are reminding ourselves that we have the power to change. We are counting on the willingness of the stream to carry away our "pollution."

Mitchell had read us a Russian folktale the night before. It was about a rabbi who sinned a lot during the year, only to cast all his sins into a lake on Rosh Hashanah and begin sinning anew the following day. The lake was asked to absorb all his transgressions year after year after year. The lake tired of taking the rabbi's "sins" and threatened to pull him into the lake as retribution. The lake would only take so much. If the rabbi was unwilling to change his behavior, the lake would refuse to take his "sins." Mitchell described the "sins" as something akin to pollution. Some pollution can be absorbed. The earth can cleanse herself of small amounts of waste. Too much pollution creates trouble. The earth can take only so much of what humans caste off.

I watch Jacob and Jessica tossing in their breadcrumbs. They are seriously attending to the process of naming their sins and casting them away. Jacob turns to us and asks, "Can you attach two sins to one breadcrumb? I'm worried that the stream won't be able to take as many as I am tossing in. I don't want it to get angry at me." We talk for a bit about the kinds of behaviors Mitchell and I are "throwing away": impatience, intolerance, being judgmental or arrogant. Psychic pollution. We sing together and continue our descent.

A few minutes into our walk, Jacob tells me what "sins" he has thrown away. "I threw away my fears. I threw away not telling people when they hurt my feelings. I threw away not telling the truth. And I threw away anything I did to hurt nature." He explains that the attempt to combine two sins on one breadcrumb was designed to protect nature. "Streams and water can only take so much from humans, you know." The environmental metaphor used the night before has had an impact. "If I throw away too much and ask nature to take it, I'm being unfair. After all, the water in the stream comes back to us in the rain. The water here is probably the same water we swam in this summer. It never goes away, just comes back as some other kind of water. We might have to drink in our sins again if we give nature too much to take care of."

I wish everyone understood this concept in the same visceral manner. Jacob is beginning to understand his place in the ecological system. He knows that his actions impact a world outside the human system. He has a glimmer of recognizing that psychological waste can also exceed carrying capacity. "Throwing away the bad things we say or think about other people is pollution too. I wonder if the earth can only take so much of that pollution too?" he ponders. Jacob seems to carry the understanding of our connection to the earth in his heart.

This walk is not the first time we have spent time outdoors as a family. As soon as we could bundle our little ones into backpacks and infant carriers, we were outside walking. They have been pulled in sleds on bushwhacking treks through unsettled areas. When they could carry daypacks stuffed with their sleeping bags, we began overnights in the White Mountains. They are troopers who dutifully follow their parents into wild places. Hiking has had a unique flavor. Mitchell and I, craving the silence and reverie of the trail, have taken turns walking with the children. We sing, play counting and alphabet games, and make up stories to keep their minds off the walking. One of us usually falls behind or surges ahead to have some time alone in the woods. What was different about this walk? We were asking the children to enter into the sacred space with us. Connecting with the natural world is a state of mind as much as it is a physical place. We were asking them to switch gears and participate in the silence ... to experience the mountain as a sanctuary in which to think about the self ... to begin to contemplate their place in the universal scheme of things.

A morning in the elementary school ...

The environment of the school seems an ideal spot for teaching ecological awareness. I was recently in my son's classroom teaching a lesson on native populations in New England. We talked about the use of natural

resources by Indians. I began the lesson with a few simple questions.

"What did you have for dinner last night?" "Ribs!!" I asked, "Where do ribs come from?" "Pigs." I asked further, "Where did the pigs come from?" "From Sun Foods." "Before they got to Sun Foods, where did the pigs come from?" "The Lord" was one response. Another was, "A farm."

So I switched to clothing. "Where did your shirt come from?" I asked one boy. "From Massachusetts, because my grandmother lives there." "Do you know what it is made of?" I asked. "50% cotton and 50% polyester" he read off the label. "What is cotton?" No response. "What is polyester?" I asked hopefully. "Polyester is rabbit!" one girl said with enthusiasm. "I have a lot of work to do," I thought to myself.

I remarked to my son's teacher the next day that I was surprised at the lack of awareness on the part of the children. The teacher answered, "It hasn't been covered yet," Ecology is a curriculum unit placed neatly between spelling and geography, covered in January or April, in the fourth and ninth grades. Relegated to a discrete subject, the connective tissue is lost. In the process, we learn to think of ecology as something outside of ourselves. It is something to learn about, not something to live within.

A good deal of a child's "learning" comes from the classroom. Six hours, five days a week are spent in school. Science is supposed to be covered in every curriculum. The interaction I had with the children made me wonder about the effectiveness of the school science program. The presentation of science curriculum is fragmented. The teachers use a curriculum that is highly programmed and broken into discrete units of study. One month children are exposed to electricity. Another month they observe a seed change into a bean plant. Experiments are done to see how temperature, moisture, and chemicals affect the growth of plants. Another month they may learn about fulcrums and pulleys. Science units, like social studies and math, are taught out of context, in isolated chunks, under highly controlled and predictable circumstances.

Why are curricula packaged this way? The teachers say it makes science easier to manage. Someone other than the regular classroom teacher can take the kids out for a special session, freeing up the teacher for a planning period. A teacher doesn't have to feel competent in science to teach the subject. Each unit is guided by a manual that also provides all the "answers." It is clean. It is predictable. The science competencies are met in measurable outcomes at the end of each project.

I started to think about the measurable outcomes the teachers were banking on. Is there an outcome that measures whether children see the relevance of this science education in their everyday lives? It seems to me that children end up with lots of little pieces of information floating around in their brains. Occasionally an experience outside the classroom might mesh with what children have learned in the classroom. *Ah Ha* ... so that's where it fits in the grand scheme of things! The connections, the systems, the integration of information into our daily lives are missing from most science curricula. References to real life may be made during a lecture. But, on the whole, science and the study of ecology have been pulled from our experience and taught indoors.

I learned as a child to dissect and separate out the whole into manageable parts. Reductionism, it is called in educational theory. Each piece of information was left standing alone, unattached until I took ecological theory in graduate school. Finding out so many years later how all the pieces fit together and influenced each other was a shock. Classroom science experiences injured my curiosity about the earth and her riches. I have had to rebuild that interest and my exploratory nature. I wonder, Would my ecological consciousness have been stimulated at a younger age had I been introduced to interdependence in elementary school? Might I have changed the way I acted, the decisions I made, or the work I chose to do had I realized my inextricable membership in the ecological system? Might I have acted more responsibly?

As I was putting the kids to bed the other night, we heard a voice from downstairs, "If you guys want to be environmentalists, shutting the lights is basic behavior!" Jacob whispered to me, "Why does he ask if I want to be an environmentalist? We just bought a few acres of the rain forest at school." I replied that being responsible at home was just as important as saving part of the environment that is endangered in a far away place.

I found out through the conversation that the school is covering ecology this month. The students are finding money to buy acreage in the tropical rain forest. The ditto sheets that come home have puzzles and pictures and informational blurbs on the importance of the rain forest. Kids have learned new songs and done a play on the animals and plants that inhabit the rain forest. But, do the children learn about their own backyard? Do they know what environmental issues plague New England? Walking into a local wetland would spark lots of questions among the students. Looking at issues such as timbering, development, wood smoke pollution would bring environmental awareness home.

The children in this classroom had trouble saying where their food comes from. They had little information about the resources used to produce the goods they enjoy. If students had to trace the origin of one of their plastic toys, I think they would be amazed. What if they

had to report on the environmental cost of producing a piece of clothing, or a plastic squirt gun, or a plastic-wrapped candy bar? Would an exercise of this kind influence how they spent their money? It does influence my decisions. I make a point of tracing one item each day. It is not much, I admit. It does floor me to think of how complex the web of production and resource use is. The clothes on the backs of the children are taken for granted. The source of their food remains a mystery. The costs of production don't even enter their minds.

I think time in school is such a valuable resource. Educators could take better advantage of it. The school itself is a microcosm for learning about how the world works. Children learn social values and environmental values. For example, if children learn that there is an infinite amount of resources available for human consumption, that will be the basis upon which they make many daily decisions. How is resource use observed by most children in the school situation?

In asking that question, I couldn't help but think about the supplies used by schools each day. The "supply cabinet" is an awesome cavern in most schools. A teacher can walk into the closet and emerge with a handful of magic markers and a ream of paper any time of the day. Stacks of colored paper lie ready in wait. Chalk, pencils, paints, even rubber balls and playground equipment come through the door on demand. The source of these treasures is not discussed with children. The disposal of them is another mystery. Tons of paper are discarded daily in trash cans. One spelling error, and the page is crumpled into a ball and tossed. Disposable lunch trays and utensils fill dumpsters. Gallons of food are thrown out for the landfills to absorb. Out of sight — out of mind. What children observe is what they learn to practice. What are we teaching them? How are we taking advantage of the precious time we have with this captive audience?

An invitation to play in the woods ...

I have four children with me: two neighborhood boys, my son, and my daughter. They are between 8 and 12 years old. We are walking through the woods on an old abandoned road. Rock walls line the right side; we pass a cellar hole on the left. There is no one here. I've never seen any other human being on this path. The kids get into a discussion of elves and fairies. They sit down around a big white pine, backs to the tree, hands firmly buried in the dirt around a root. We begin to meditate. Jessica gasps. "There is a little person in that stump," she whispers. "Yeah!" says Dan, "He's working on something." "He's the watcher. He keeps the wood safe," said Greg. "He knows we won't hurt him, so he can show himself." The hush that encircles us is almost eerie.

The kids created an atmosphere of magic that permeated every thing we did from that minute on. They found "praying sticks," which were gifts from the "watcher." The sticks walked home with us. Each had a name and had revealed its secret power by the time we hit the paved road. All the way home, they found images and likenesses of fairies, elves, and animal spirits in the trees, rocks, and fallen leaves. The spirits made themselves known and were respected by the children. It was a privilege to be invited into this circle of magic and spiritual awareness.

To be fully in the moment, I must let go of the way I normally walk through this world. I can't count the number of days I spend unconsciously moving through the world in order to get to the next thing I have to do. Sometimes I can't even remember how I got from one piece of the road to the next. When I wake up from my all-consuming thoughts, I have somehow successfully managed to maneuver the car to Keene. This is scary. I can also walk through the woods in this unconscious way. Miles of wilderness can pass by while I sort out the problems of the world inside my head. I must learn to be present in nature. I must learn to meet nature with my senses alive and receptive. It is hard work.

Some of the time spent outdoors with the children is designed to practice mindfulness and sensory immersion. As a parent, I have to remind myself to be present in the moment, to be here, now. Adults have to work to stay with the children in their play activities and not stray into thoughts about work, relationships, memories, or what would be a more productive use of time. Play is mindfulness at its best.

Children get lost in their play. They are free, immersed, and present in the moment. The engaged state of play allows the purest emotions to flow forth. Play is a method of seeing the conventional, hurried world through a different lens. Children reinvent what they know of the everyday world by putting events into different contexts, playing roles, and shifting their perception of reality to get a better look at their world. I learn a lot from children's play. Letting go of my conventions. Stepping out of my habitual ways of seeing the world. Being consumed in an experience.

Combining the essence of play with my experiences outdoors gives me the venue for immersion. I am working on the ability to be in the world in the purest sense, taking it all in without the screen of everyday worries, time constraints, expectations, or assumptions. This way of being in the world engages my feelings.

I carry strong memories from my childhood of playing in the fields, near a certain stream, in a large oak tree. I have talked to many adults who have memories

from childhood of profound and sacred places or of emotionally provocative experiences outdoors. We carry these special memories in our hearts. Strong environmental memories originate from experiences in which we allow ourselves to be vulnerable and open to what the natural world offered. They are etched permanently on our souls. I think these memories influence how we interact with nature as adults.

My work is teaching adults who are entering the environmental profession. I ask my students to recall their childhood relationship with nature. When the memories are unlocked, the flow of emotion is provocative. An intense commitment and motivation for environmental work most often originates in their childhood experiences with sacred places or in raw experiences in nature. Some reminiscences follow:

> Camping with my family in the desert land of California was fun and dangerous. I never questioned the combination of fear with excited interest in what surrounded me. The threat of flash floods and snakes came hand in hand with the beauty of the flowering cactus. I was just there, taking it all in, with no thought of what might happen. We were simply immersed in the place. I felt totally connected.

> I remember hiding in the thickets that surrounded our backyard. I would squeeze in on my belly, be surrounded by the dark and musty smells, and just sit or play adventure games. After a while I lost the sense of myself as a visitor. I became the sinewy branches that twisted and turned in labyrinth designs. I used to cringe inside when the hedge clippers came out. The pain would run through me as I assumed it ran through the bushes being trimmed.

> My favorite childhood memories are of taking walks in the rain in the woods, smelling the change in the air as the trees let some of their color seep into the drops of water as they splashed on my face. Of collecting salamanders, discovering Indian pipe as they poked their stalks out from under wet leaves, springing alive with the falling rain, feeling the peace. I felt connected and full of wonder in this beautiful world. My memories of my formal education could be categorized as passive, separate, rote, and conventional. I learned how to be a human in control of nature, devoid of any sense of place and filled with broken pieces of information.

Recalling memories reunites my students with the spiritual and emotional connection they once felt for the natural world. The most powerful memories are those full of smells, textures, color, and adventure. Reawakening sensory memories shakes the students out of their intellectual overdrive. Their intellectual awareness of the principles of ecology is merely abstract. For example, they can name environmental disasters or describe the impact human life has had on an ecosystem. The memories of childhood link their hearts to the places they experienced nature as children. They renew the spiritual connection that was lost on the first day at school ... retrofitting emotion onto the house of the intellect. They are reconnected in memory to a time when, as children, they were immersed in the experience and took in the world around them with all their senses.

I buried my connection to nature during my lifetime. I'm not sure I ever missed it or knew that it was missing. My search for environmental identity began when I started working in the educational field. I taught fourth grade science. I took the kids outside a lot because I hated being cooped up on nice days. Observing the raw excitement and wonder alive in my students made me realize there was passion missing in my own relationship with nature. I began searching for connective tissue that would pull nature closer to my heart. I was looking for a profound awakening. I wanted to feel the spiritual ecstasy that other environmentally active colleagues alluded to when they spoke of their commitment to the earth. I thought a vision quest or some other source of enlightenment might be necessary to provoke an emotional and spiritual awakening.

Then I realized that I was surrounded by the profound and the sacred. It was present in my children and their play. My students would spark and sizzle with the electricity of discovery. They were held in awe when the complexity of our connection to the earth became evident in the study of science. It was available in my backyard and garden. I only had to pay attention and take advantage of the lessons offered each day.

My identity didn't have a clear or conscious environmental component for years. The stories I have told here are examples of everyday life experiences that have rejuvenated my environmental identity. My work with children gives me opportunities to arouse their sleepy interest and titillate their curiosity with forays into the fields and forests. I take advantage of opportunities to walk outside. I usually have about two hours on Saturday and Sunday to walk in the woods. At work, lunch time is spent wandering the local cemetery where green space abounds. I have been practicing the art of immersion during those walks. I try to clear my mind and concentrate on listening, smelling, and seeing the world around me. I try to remember the magic that still resonates in the vivid memories I carry of crawling on my belly through the grass or sitting for hours in a tree. Every walk I take strengthens the feelings I have for the earth. I use each day to exercise my growing awareness of connectedness, of membership, of community with the earth.

The Educational Philosophy of Wendell Berry

Paul Theobald and Dale T. Snauwaert

Wendell Berry's educational philosophy builds from his conception that human nature is defined by geographic and community relationships. Emphasizing the full development of the individual, not just his practical, productive capacities, Berry's thought is firmly rooted in the traditions of the ancient Greeks and the Frankfurt School.

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This article is a guide to the educational philosophy of Wendell Berry. Berry's name has been mentioned in the company of E. B. White, Henry David Thoreau, and Ralph Waldo Emerson for his accomplishments as a poet, novelist, and essayist. Yet although the name Wendell Berry comes up in educational circles, there is no secondary source to help the interested researcher find out Berry's stand on education. This article is intended to provide a general understanding of what Berry has to say, and to ease the burden of those who choose to pursue Berry's philosophy further. To this end, we also place Berry's educational philosophy in the context of the history of educational ideas in general. Our intention is to provide not the last word on Berry's educational philosophy, but the first.

The article is divided into three sections. *Section I* discusses Berry's foundational conceptions of human nature, knowledge, and the good society, which forms the framework for his philosophy of education. It will be argued that Berry conceives human beings as creators as well as moral agents who achieve their humanity only in relation to their geographical space (the land) and their community. He conceives knowledge as being fundamentally experiential, imaginative, relational, and interactional in nature. He envisions the good society as being unified with nature, community-based, and democratic.

Section II focuses on Berry's educational philosophy in terms of the purposes of education, curriculum, and pedagogy. The general philosophical orientation discussed in Section I translates into an educational theory devoted to the cultivation of highly literate individuals capable of exercising critical judgment concerning a variety of social, political, and economic issues. It translates into an educational theory that advocates a liberal curriculum in combination with an experiential and critical pedagogy.

Section III attempts to place Berry's educational thought in the context of the history of educational ideas. It will be argued that Berry belongs to a philosophical tradition with roots in Greek antiquity. Berry maintains, as the Greeks did, that there exists an intimate relationship between education, or the develop-

ment of character, and the quality of community life. Coupled with this "paideic" view of culture and education is his advocacy of critical consciousness similar to the cultural hegemony theory of the Frankfurt School tradition.

Philosophical foundations

As James Campbell (1990) points out, for Berry the achievement of one's humanity is contingent on being connected to the land. Berry maintains that "we and our land are part of one another" (1977, p. 22). Berry is positing here what may be referred to as an "ecological" conception of human nature, wherein personhood is constructed, not socially per se, but ecologically, in dialectical relation to one's geographical space. As Berry puts it, "Nature and human culture, wildness and domesticity are not opposed but are interdependent" (1987, pp. 11–12).

The essence of the relationship between personhood and the land is one of care. Berry maintains that it is only through caring for one's geographical space that one can live a fulfilled human life. In Berry's words: "This place, if I am to live well in it, requires and deserves a lifetime of the most careful attention" (Berry, 1981b, p. 71). However, if we do violence to the earth, then we can expect a violent way of life, an alienated culture. For, "as we and our land are part of one another, so all who are living as neighbors here, human and plant and animal are part of one another, and so cannot possibly flourish alone" (Berry, 1977, p. 22). If we act irresponsibly and exploit the earth as well as its inhabitants, then short-term profit may be derived but at the cost of long-term fulfillment. Unfortunately, as Berry points out, our present culture is one in which we are "willing to accept permanent loss as a tolerable charge against annual gain" (1981a, p. 85). In the end, for Berry, when we are alienated from and do violence to the land, we become alienated from ourselves.

Interwoven in the notion of our relationship with the land is *community*, which Berry defines as the "mental and spiritual condition of knowing that the place is shared, and that the people who share the place define and limit the possibilities of each other's lives" (1969, p. 61). Hence, Berry believes that our relationship with the land is mediated by the community — for we share the land with others, and, in sharing, our relationship to the land is defined by the wishes, aspirations, interests, and actions of those living with us. In this case, what we become is not only shaped by our individual interaction with the land, but also conditioned by our knowledge of its being shared. The sharing of the land can be irresponsible and exploitive, or it can be democratic and equitable. How it is shared in turn shapes the mental and spiritual condition of the individual. In a genuine community, each individual possesses a responsible share in caring for the land and for communicating this responsibility. Consequently, we as individuals and as communities are moral agents, charged with the responsibility of maintaining and enriching the earth and its inhabitants.

In addition, implicit in our relationship to the land is the view of human beings as creators. Echoing Paulo Freire, Berry maintains that we "cannot live in nature without changing it" (Berry, 1987, p. 7). Through our interaction with nature we transform it, either creatively or destructively. It is through "work" that our human energy is used creatively to enhance life. Thus, work is something that should be treated with the utmost dignity (Berry, 1977, pp. 12 and 219). Through it, we become stewards of the earth, sharing a commitment with others to life's preservation. Berry suggests that ours is a "world in which millions of people have lost any idea of the materials, the disciplines, the restraints, and the work necessary to support human life." In the process we have "become dangerous to [our] own lives and to the possibility of life" (Berry, 1983, p. 13). We have lost our capacity to create, and in the process we have lost a part of our humanity.

However, in order to create, knowledge is required — particularly knowledge grounded in local life. Berry maintains that "local life is intimately dependent for its quality, but also for its continuance, upon local knowledge" (1972, p. 67). Knowledge, according to Berry, is not, and cannot be, "objective." He argues, "Objectivity in practice means that one studies or teaches one's subject *as such*, without concern for its relation to other subjects or to the world" (1987, p. 90). Berry maintains that the "truth" of something is gained only when it is viewed, not in isolation, but in relation to other things. "The issue of truth rises out of the comparison of one thing with another, out of the study of the relations and influences between one thing and another and between one thing and many others" (Berry, 1987, p. 91). Relational knowing in turn is based on "feeling and appearance, intuition and experience," which taken as whole comprises "judgment" (p. 90). Thus, for Berry, knowledge is a function of judgment, which entails the intuitive and experiential apprehension of an interdependent world. Local knowledge becomes the most important and viable form of knowledge, because knowledge of one's locale is intimately experiential and intuitive in the sense that it emerges out of one's living and life in a place over a sustained period.

In addition, Berry maintains that "by imagination we know truth" (1987, p. 94). Imagination is an act of creation, an act of visualizing alternatives and possibilities — possibilities that are corrected and refined through the process of judgment. Imagination also serves to correct our experience, to guide it in new and

creative directions that seek new relations and new possibilities for living in harmony with the earth and with one another.

In summary, Berry's underlying philosophical orientation may be best described as *ecological*. He envisions human life, community, and knowledge as fundamentally situated in an interdependent relation with the earth. It is through the earth that we achieve humanity — culturally, intellectually, and spiritually.

Berry's educational philosophy

Berry maintains that the most fundamental issues related to education are the questions of productivity and judgment. He suggests that "these two problems, how to make and how to judge, are the business of education" (1987, p. 81). From this perspective, the purpose of education is the development of productive skills and the capacity to exercise judgment. These skills, however, are the "by-products of the making of a good — that is, a fully developed — human being" (p. 77). Hence the purpose of education for Berry is fundamentally liberal; it is the development of the full potential of the individual.

Berry argues, however, that current educational practice is profoundly skewed to the development of "practical," productive capacities. He maintains that "the purpose of education [in the United States] has been to prepare people to 'take their places' in an industrial society" (Berry, 1990, p. 25). Berry suggests that there are hegemonic forces at work in the schools urging all concerned to expose what is "practical." He writes:

> The schools, then, are following the general subservience to the "practical," as that term has been defined for us according to the benefit of corporations. By "practicality" most users of the term now mean whatever will most predictably and most quickly make a profit. Teachers have either submitted, or are expected to submit ... to the doctrine that the purpose of education is the mass production of producers and consumers. (Berry, 1972, pp. 169–170)

Concerning "cultural hegemony,"[1] Berry believes that those with power in this society have at their disposal the ability to package thoughts. Using the example of the agribusiness industries and their relations with farmers, Berry explains: "The products offered for sale by the makers of agri-industrial technology are not just ready-made solutions; they are ready-made thoughts" (1984, p. 23). Berry further explains that one should not look to news reporting agencies such as agribusiness journals or even ostensibly "objective" news organs like *Newsweek* to expose this phenomenon, for they are the vehicles that convey the "ready-made thoughts." The result is what Berry calls a "mind-dominated society." In such a society

> fewer and fewer people will possess independently the power or ability to make up their own minds. This is because dominance of mind always implies, politically and economically, dominance by somebody else's mind — or worse, by the "mind" of a government or a corporation.
>
> In a society in which nearly everybody is dominated by somebody else's mind or by a disembodied mind, it becomes increasingly difficult to learn the truth about the activities of governments and corporations, about the quality and value of products, or about the health of one's own place and economy. (Berry, 1970, p. 126)

Although Berry has not written precisely on this matter, it is clear that his reticence about public schools stems from his view that what schools do best is prepare students to obey and believe the packaged thoughts that will bombard them the rest of their lives. Thus, we may understand his poorly concealed contempt for teachers who submit to teaching packaged curricula. These teachers do a disservice to themselves and their students. Berry writes: "The great enemy of freedom is the alignment of political power with wealth. This alignment destroys the commonwealth — that is, the natural wealth of localities and local economies of household, neighborhood, and community — and so destroys democracy, of which the commonwealth is the foundation and the practical means" (1970, p. 127).

This domination turns the schools into what Joel Spring (1976) refers to as "sorting machines," at the expense of the development of the whole person, and in particular, the development of judgment. As discussed in Section I, without the development of judgment, one cannot adequately engage in and preserve life rooted in the land and community.

To recognize lies, half-truths, and blatant attempts to convince people of needs that do not exist, Berry claims that Americans must be literate. Critical intelligence, for Berry, is derived from the best literature: "I am saying, then, that literacy — the mastery of language and the knowledge of books — is not an ornament, but a necessity. It is impractical only by the standards of quick profit and easy power" (Berry, 1972, p. 173). His book *Standing by Words* (1983) is a passionate defense of clarity, exactitude, and standards in the use of the English language. Berry sees the person who stands by his words as a contributor to higher ethical standards. The perversion of the English language, on the other hand, allows people to connive and to lie and to cheat. By not being clear and by not saying what is meant, politicians continue to dupe people into believing acts of environmental violence are done in their interest.

Analyzing transcribed conversations of the Nuclear Regulatory Commission during the Three Mile Island debacle, Berry confides that "what is remarkable, and frightening, about this language is its inability to admit what it is talking about" (1983, p. 38). By not being precise, by utilizing generalities and jargon, responsibility is successfully avoided. One need not stand by words. There is no ethical commitment in these utterances.

Berry's love for the English language is great, certainly, and he no doubt recognizes that its use requires study. But by delineating a relationship between proper language and ethics, he also suggests there is a note of urgency with respect to this study.

To be an effective component in the production of an ecologically sound social and economic order, then, public education, if we interpret Berry correctly, would have to promote a critical "literacy" that allows a person to see issues form more than one point of view. The cost of comfort, for instance, must be measured in more than just economic terms. Berry (1974, p. 36) writes in poetic form of his efforts to restore his eroded pasture and fields:

> I work to renew a ruined place
> that no life be hostage of my comfort.

Berry likely would suggest that public education should be intimately connected to life on earth. It should engender more respect for the expectations of the earth itself than for the expectations of those who are currently ruining it. Schools must allow students to see and understand the legacy of exploitation that has been the single most pervasive theme in American history. With the exploitation of the earth has come the exploitation of people. Minorities, of course, and women, are always the first victims.

> I do not know how exact a case can be made, but it seems to me that there is an historical parallel, in white American history, between the treatment of the land and the treatment of women. The frontier, for instance, was notoriously exploitive of both, and I believe largely for the same reasons. Many of the early farmers seem to have worn out farms and wives with equal regardlessness, interested in both mainly for what they would produce, crops and dollars, labor and sons; they clambered upon their fields and upon their wives, struggling for an economic foothold, the having and the holding that cannot come until both fields and wives are properly cherished. And today here seems to me a distinct connection between our nomadism (our "social mobility") and the nearly universal disintegration of marriages and families. (Berry, 1972, p. 162)[2]

According to Berry, the only way to avoid "this destiny of victimization has been to 'succeed' — that is, to 'make it' into the class of exploiters, and then to remain so specialized and so 'mobile' as to be unconscious of the effects of one's life or livelihood" (1977, p. 5). Rather than being an agent in this process, Berry would suggest that schools need to work to reverse it. It would be simplistic, however, to suggest that Berry is simply following in the radical/critical tradition. An integral part of the educational experience of youth, Berry believes, should include socialization into membership in the local community. According to Berry, this comes from communion and shared work in the company of adults. Part of the public school experience that Berry finds detrimental is the long hours of forced association with age-mates rather than adults. Again according to Berry, students need to recognize that there can be dignity, even collegiality, in doing necessary, sometimes tedious work well. This is a vital component of Berry's educational philosophy, which emanates from his conception of human nature and knowledge. In this light, Berry feels that schooling in its present condition is little better than "babysitting, job training, or incarceration" (1970, p. 112). However, he maintains that there is much that schools might do to improve society since they are most likely here to stay. According to Berry, schools must teach literacy by providing access to the best that has been written and said. Schools must teach a critical awareness concerning the uses of language and an inclination to use language ethically. They must promote an accurate and true understanding of our nation's history, particularly with respect to our use of the environment. They must promote local knowledge and encourage membership into the local community by guiding students to understandings about the forces aligned against their communities. In the tradition of John Dewey, schools should not be a preparation for life, the school should be life itself (Dewey, 1938).

However, at the same time, Berry is very much a traditionalist. He believes education must be shaped to fit disciplines, not students. Berry maintains that the "need for a broadly informed human judgement ... requires inescapably an education that is broad and basic" (1987, p. 83). Berry employs the metaphor of the tree of knowledge to explicate his notion of this broad and basic education. The trunk of the tree represents the core of knowledge: a broad, liberal education, from which various specific competencies and understandings can grow (branches of knowledge). In this model specialization is based on generalization, and specific professional practice grows out of a general education (pp. 82–83). Berry writes:

> It cannot be denied, to begin with, that all disciplines rest upon knowledge of numbers and letters. From there, one can proceed confidently to say that history, literature, philosophy, and foreign languages rest principally on the knowledge of letters and carry it forward, and that biology, chemistry, and physics rest on the knowledge of numbers and carry it forward. This provides us with a description of a probably

> adequate "core curriculum" — one that would prepare a student well both to choose a direction of further study and to go in that direction. (Berry, 1987, p. 92)[3]

What makes Berry's prescriptions different from those of other traditionalists is that he emphasizes the necessity to learn *from* the content rather than *about* it. By way of explanation, Berry uses the controversy over instruction of the Bible as literature in the public schools. In Berry's mind, both sides of the argument are missing the point. That is, "that we could not consider teaching the Bible 'as literature' — if we were not already teaching literature 'as literature' — as if we do not care, as if it does not matter whether or not it is true" (Berry, 1987, p. 92). If there are no lessons to be learned from life in school content, then such "content" should not be taught. If there are, then these lessons should be sought, discovered, analyzed, and discussed. Everything studied should equip students with new understandings about the human condition. "The grade schooler and the graduate student must study the same history, and there is no excuse for falsifying it to make it elementary" (p. 89). In this simple but powerful insight, Berry is able to integrate the traditionalist, progressive, and critical elements in his philosophy, for the liberal curriculum is maintained but with a experiential and critical edge.

A major component of the liberal curriculum has included great respect for wisdom, which has stood the test of time. Given Berry's affinity for the use of traditional, local, and community knowledge, it comes as no surprise that Berry should exhibit a similar respect with regard to school curriculum, although from the perspective discussed above. A popular reading of progressive philosophy suggests, however, that Dewey felt there was too much institutional inertia in America and that his reform efforts were intended to facilitate rapid change in these institutions (like schooling) in order to keep pace with technological and scientific advances. This way of thinking is diametrically opposed to Berry's traditionalism.

Like Dewey, however, Berry would certainly think very little of a national curriculum, just as he thinks little of the tests and test-makers who are enjoying increasing influence over curricular matters. Given his ecological conception of human nature, knowledge, and community, Berry views schools as a local concern. What is worth knowing and what is worth studying should be fundamentally connected to the lives of the students. Although Berry believes that students should know that certain work is required for their membership in the local community and the larger community that is humankind, he has absolutely no use for vocational preparation in the schools.

Berry has heard the argument that students are free to choose "tracks" and is not impressed. These are free choices granted to children not prepared or ready to make them. The idea, in reality, is to impose adult choices on children, and these "choices" mask the most vicious sort of economic determinism. The idea of education as a "career track" diminishes everything it touches: education, teaching, childhood, the future (Berry, 1987, p. 85). Furthermore, Berry says that such a course of study is not a grant of freedom but a "severe limitation upon freedom." It delimits future possibilities.

In the spirit of E. F. Schumacher's economic treatise *Small is Beautiful*, Berry urges Americans to "Think Little."[4] This advice is in keeping with his basic philosophical orientation and curricular prescriptions outlined above. Local knowledge, local ethics, local community membership, and local responsibility are derived from a ecological conception of human nature, judgment, and productivity, from which a critically liberal and experiential curriculum is framed. Concerning pedagogy, Berry writes: "Like a good farmer, a good teacher is the trustee of a vital and delicate organism: the life of

Forest Manager, John Brady, casts a coyote track for students from the Primary Magnet School. Photo courtesy of Terry Murray (See pp. 44–55).

the mind in his community. The standard of his discipline is his community's health and intelligence and coherence and endurance. This is a high calling, deserving of a life's work" (1990, p. 165).[5]

Ideally, teachers should work after the model of the craftspeople of old. They should work as examples to their apprentices, leading them in the direction of the mastery that they themselves have attained. This metaphor implies a pedagogy that is experiential, active, participatory, and conversational. But it is not student-centered; rather, it is centered in the knowledge and mastery of the teacher who shapes the judgment of the student-apprentice, through experience and discourse, experimentation and conversation. It is a pedagogy diametrically opposed to what Paulo Freire refers to as the "banking" concept of education, wherein information is merely transferred to, deposited in, the mind of the student. Berry's pedagogy is mutually participatory, wherein both teacher and student are engaged together in a process of creation and development — the development of deeper understandings concerning life and its meaning.

Berry's place in the history of educational thought

Where is Berry's place in the history of educational ideas? Berry's educational philosophy comprises a combination, and perhaps an integration, of three prominent traditions in the history of educational thought: the traditionalist, the Deweyan progressive, and critical traditions.

As James Montmarquet (1985) points out, Berry belongs to a tradition of agrarian philosophy that has roots in Greek antiquity. The Greeks held that the *polis* was the greatest educator. The function of the city, the polity, was fundamentally educative: to perfect the individual, to culture virtue (Jaeger, 1948; Stone, 1988). This is the essence of *paideia*. Just as the Greeks conceived the development of virtuous citizenship as a function of the *polis*, Berry conceives the individual in terms of the community and the land and the achievement of personhood in relation to community. The community grounded in the land is what has the greatest educational force. However, just as the Greeks pursued rhetorical literacy through formal education in order to fully participate in the life, and hence the overarching educative influence, of the *polis*, Berry advocates a critical literacy in order to participate fully in community life, leading to the eventual achievement of full personhood. The cultivation of this literacy requires, as did the rhetorical literacy of Greek antiquity, a "liberal" education.

Berry, however, departs from the Greek tradition and a traditionalist liberal education in a fundamental, "modern" way. Although he believes that the community has a profound and central educative potential, Berry also recognizes that it has a profound *miseducative* potential. The state has the power to maintain cultural hegemony, the power to indoctrinate rather than educate. A fundamental point of a liberal education for Berry is the development of the capacity to critically assess the legitimacy of various ideas and policy alternatives. From the *polis* and *paideia*, Berry moves to Gramsci and the Frankfurt School tradition. However, this movement is an incorporation rather than a rejection; it is a combination that yields a liberal (in the Greek sense) yet critical educational orientation. Its goal is simultaneously to develop a critical consciousness and an awareness of "the mental and spiritual condition of knowing that the place is shared" (Berry, 1969, p. 61) and of personhood intimately connected to the place and its sharedness. In this way, Berry represents an integration of the classical (traditionalist) and the critical traditions. His educational philosophy seeks to provide a foundation for cultivating a virtuous life, as did the Greeks, while providing the means to penetrate the corruption of modernity.

Berry's philosophy also contains a significant strand of Deweyan progressivism, in that he views the school, not as a preparation for life, but as intimately connected to life itself. We see this in his conception of liberal education as a guide to life rather than as something merely to learn about for its own sake. Berry's advocacy of community work and experience amid the problems of the adult world are also very Deweyan. The Deweyan strand is also seen in his participatory, social, and active pedagogical approach. He departs from Dewey, though, in a significant way, for he sees education as fundamentally teacher/discipline-centered as opposed to being child-centered. The teacher is the master craftsperson, and the student the apprentice. Although the apprentice-student engages in a mutual process of creation, the process is centered in the teacher.

Wendell Berry's educational philosophy may be best described as *ecological*, for it is concerned with the care and cultivation of our geographical space, as well as truth and justice. It is a critique and a positive orientation grounded in the fact that we share the earth and are responsible for it. The fundamental educational truth here is that how we treat the earth and its inhabitants will in the end determine our own character.

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Notes

1. For a discussion of cultural hegemony, see Sallach, David. (1974). Class domination and ideological hegemony. *Sociological Quarterly, 15*, 38–50. For its application in education, see Apple, Michael. (1979). *Ideology and curriculum*. Boston: Routledge & Kegan Paul; and Giroux, Henry, & McLaren, Peter. (1989). *Critical pedagogy, the state, and cultural struggle*. Albany, NY: State University of New York Press.

2. This excerpt from an essay entitled "Discipline and Hope" also appeared in Berry's book *Recollected Essays* (1981b, p. 215).

3. With respect to Berry's thoughts on curriculum, probably the best two essays one might read include (1) "The Loss of the University," in *Home Economics* (Berry, 1987); and (2) "In Defense of Literacy," in *A Continuous Harmony* (Berry, 1972).

4. "Think Little" is the title of an essay included in *A Continuous Harmony* (Berry, 1972).

5. Probably the best essays concerning Berry's views on pedagogy are "Wallace Stegner and the Great Community," in *What Are People For?* (1990); "The Loss of the University," in *Home Economics* (1987); and "Discipline and Hope," in *A Continuous Harmony* (1972) and reprinted in *Recollected Essays* (1981b).

The Black Rock Forest Project

Creating Connections in the Living Laboratory

Terry Murray

In 1991 the Newburgh (NY) Enlarged City School District initiated a series of educational programs in Black Rock Forest, a 3,700-acre preserve. This article describes the planning, implementation, and student reactions to programs designed to rekindle the connection between learning and the environment.

> This we know. The earth does not belong to man, man belongs to the earth. This we know. All things are connected like the blood that unites one family. All things are connected. Whatever befalls the earth befalls the sons of the earth. Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself.
>
> — *Attributed to Chief Seattle*[1]

"We have access to 3,700 acres of protected ponds, streams, and woodlands. How should we use them?" In May 1991, twenty teachers, department heads, and administrators from the Newburgh Enlarged City School District, in Newburgh, New York, gathered to ponder this question. As a new institutional member of the Black Rock Forest Consortium, the district was entitled to use the natural resources of this forest preserve to enhance and expand its educational efforts.

For the district staff assembled at this initial brainstorming session, the possibilities seemed limitless — almost overwhelming — and the practical logistics were challenging. Given the size of this urban/suburban school district (more than 11,000 students, prekindergarten through twelfth grade), the potential environmental impact on the Black Rock Forest was sobering.

From this initial gathering in 1991 has evolved the Black Rock Forest Project — a thoughtfully planned and developed educational initiative. To date, 500 students, 40 staff members, and 45 parents from four district schools have been involved in long-term programs at Black Rock Forest. The process of planning, implementing, and managing this ambitious task is a lesson in environmental, educational, and human *connections*.

Located approximately 50 miles north of New York City, the Newburgh Enlarged City School District draws students from the City of Newburgh and the towns of Newburgh and New Windsor. The district includes eleven elementary schools, a middle school, two junior high schools, and one high school. According to 1990 census information, this district served a population of 72,948, with 26,454 in the city of Newburgh and 46,495 in the towns of Newburgh and New

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Windsor combined. The population drawn from this mix of suburban and urban settings is culturally, socially, educationally, and economically more diverse than that of neighboring communities. In 1979, challenged by increasing segregation of urban and suburban schools, the district initiated magnet programs at two of the urban schools and one of the suburban schools. These magnet programs were designed to reduce minority group isolation and enhance the academic opportunities for students in the target schools. The magnet schools approach to promoting diversity has proved to be very effective for this consolidated school district. All eleven of the district's elementary schools, the middle school, and one of the junior high schools were magnet schools. It was through Newburgh's magnet schools and the state and federal funding that supports them that the district joined the Black Rock Forest Consortium in 1991.

The Black Rock Forest is located in Cornwall, New York, approximately eight miles south of Newburgh. It is owned by the Black Rock Forest Preserve and operated by a consortium of thirteen schools, colleges, and institutions who share in its management, use, and upkeep: the American Museum of Natural History, Barnard College, Brookhaven National Laboratory, Brooklyn Botanical Gardens, City College of New York, Columbia University, Dalton School, Friends Seminary, Lehman, Newburgh Enlarged City School District, New York Academy of Sciences, Storm King School, and United Nations School. Activity in the forest by consortium members, individually and collaboratively, has focused primarily on scientific research, education, and preservation.

From the onset, the Black Rock Forest Project has been goal directed. During the early stages of planning and development, a cross-section of school district staff members, administrative personnel, and lay volunteers gathered for an all-day session to share in the development of a vision for this project. The ideas, resources, and support generated through this event provided the foundation for developing both a structure and objectives for the project's development.

Developing a plan

Having identified Black Rock Forest as an ideal resource for enhancing and expanding its educational effectiveness, the Newburgh School District was seeking innovative approaches that would respond to the academic and human needs of a diverse community of learners. The success of a natural setting and an experiential approach in providing whole-person experiences that are direct, meaningful, and growthful has been well documented (Heding & Conrad, 1986a, 1986b). Programs in Black Rock Forest, through hands-on projects and activities, could address a wide range of learning styles and respond to the learners' social, emotional, and academic needs. These approaches could unite and integrate curriculum areas in ways that are stimulating, engaging, and relevant to life issues. A values-based approach to outdoor education has the potential to foster awareness and commitment, as well as develop the knowledge and skills needed to address the environmental and social issues of the twenty-first century.

Drawing on the shared vision of district staff members, board members, and students — and incorporating the ideas of key consultants and resources — the planning team began developing programs to address the following needs[2]:

The need for environmental literacy. The quality of future life depends directly on each person's understanding and acceptance of responsibility for our global environment. Outdoor education can be a process for recognizing the values and clarifying the concepts necessary to understand our interrelatedness with nature and with one another.

The need to strengthen students' knowledge of academic subjects. The acquisition of concepts and skills in reading, math, and science remain important educational priorities. Identifying and developing direct, relevant approaches that redefine and redirect math, science, and technology education are critical challenges.

The need for social and emotional education. Recognition and implementation of a formal affective curriculum are critical to the development of students who are skilled and self-confident in dealing not only with academic subjects, but also with the challenges of living in an increasingly complex and diverse world.

The need for reality. Lessons of life are everywhere in the outdoor classroom. Going beyond words and symbols, children can interact with the natural world and with one another while dealing with direct, purposeful tasks. Students explore nature and human nature.

Critical decisions

Several early decisions in the planning and development processes of the Black Rock Forest Project have proved critical to the environmentally and educationally sound growth of the program:

1. *Focus on quality, not quantity.* Through targeting specific schools and age groups in the district for involvement, high-quality, sustained experiences have been possible.

2. *Plan carefully, train fully, monitor closely.* By articulating and communicating objectives and guidelines, involving and training staff members in each participating school, and carefully guiding all programs in the forest, the project has been safe,

effective, and welcomed by the forest staff and other consortium members.

3. *Promote integrated, interdisciplinary educational approaches.* By encouraging programs in Black Rock Forest that are initiated in the classroom, linked to school themes and approaches, and processed through follow-up activities, sound holistic and experiential learning practices have been developed.

4. *Develop and maintain a conscious and responsible environmental ethic.* As the steward of a rich natural resource and educators for future generations, the district has taken on a tremendous responsibility to use the forest effectively and appropriately.

Currently, four district schools are involved in ongoing programs in Black Rock Forest. They are: The Magnet Middle School, The Primary School, Horizons-on-the-Hudson Magnet School, and the North Junior High School. Although each school has adapted the approach to meet its unique needs, the four are linked by a commitment to a set of objectives, a statement of environmental ethics, and an instructional model that is both holistic and experiential.

In his book *Rethinking Education,* Phil Gang has developed a new conceptual framework for education. Recognizing that of all our human institutions, education has the greatest potential for effecting positive social and political change, Gang advocates a new educational paradigm to foster positive global transformation. This new educational perspective advocates approaches that are democratic, experiential, humanistic, and holistic (Gang, 1990). As our objectives and instructional model reflect, the writings of Phil Gang, Edward Clark, Jr. (1988), David Orr (1989), and Ron Miller (1991) on these new directions in education have been catalysts and guides for articulating our educational approach in Black Rock Forest. While thinking globally, the Newburgh Enlarged City School District has attempted to act locally by developing an outdoor program filled with opportunities to incorporate these principles, and support this shared vision.

Making connections

A beginning.

> Today is Tuesday, the 28th day of April. This is our first day as a whole group in Black Rock Forest. It is way different at Black Rock than at school because here you have some freedom and it's peaceful. In school, we could only walk up or down the stairs or in the hallway. We went to Sphagnum Pond, around Tamarack Pond, and then back to the stone house. We heard birds and squirrels. We also saw fish in the ponds. I thought that it was going to be boring here, but when I finally got here, and after a few activities I was fine. I think that you should never judge something if you have never tried something. I think that I'm gonna learn a lot about how the forests help people and how important they really are. I think everyone should experience some time at Black Rock.
>
> — *Seventh grader, Magnet Middle School*

An ending.

> This experience was good because it was like a whole new different thing for me. I liked learning here. The reason why is because I never liked the forest before. Now, I don't want to leave.
>
> — *Seventh grader, Magnet Middle School*

These journal entries illustrate students' attempts to connect their experiences in Black Rock Forest to the larger realities of their lives. The new insights, genuine emotion, and affection for their new natural "home" are reflective of the broader impact of the Black Rock Forest Project on participating students. Over the past two years, students and staff members have spent more than 500 hours in the forest as part of this district project.

As the program evolves, it weaves an intricate web that links individual experiences through interaction in a human and ecological community. Viewing the Black Rock Forest through this web of connections may offer some insights into its structure, impact, and future potential.

Environmental connections

> There is a great deal of talk these days about saving the environment. We must, for the environment sustains our bodies. But as humans we also require support for our spirits, and this is what certain places provide. The catalyst that converts any physical location — any environment if you will — into a place, is the process of experiencing deeply. A place is a piece of the whole environment that has been claimed by feeling.
>
> — *Alan Gussow, Friends of the Earth*[1]

Awe, wonder, reverence, and respect — all of these words were used frequently in the planning stages of the Black Rock Forest Project. Above all, this wonderful natural resource has afforded children with the opportunity to be immersed in the natural world, and through this immersion, to become comfortable, aware, and stimulated by this vast outdoor classroom.

As Alan Gussow so aptly states, for students in the Newburgh School District we wanted Black Rock Forest to be a "piece of the whole environment that has been claimed by feeling." For many students, this forest provides the first sustained experience in a natural setting. Primary project objectives were to support girls and boys in moving beyond their fears and limited experiences, and to rekindle their natural curiosity, creativity, and sense of wonder.

Close at hand, zealously protected, and rich in resources, the Black Rock Forest proved to be an ideal setting. This 3,700 acre wilderness environment envelops mountains, ponds, wetlands, brooks, well-main-

tained trails, and a wide variety of wildlife. The forest has a series of seven ponds, all at an altitude of over 1,000 feet. Six of these ponds provide the water supply for the villages of Cornwall and Highland Falls. Formed by Dr. Ernest Stillman, a research physician interested in forestry, Black Rock Forest has been used by Harvard University and most recently by the Black Rock Forest Consortium as a research and educational site. The forest's natural history is carefully documented through land use records, geological and meteorological records, and research data. In a recent newspaper article, Dr. William Schuster, forest director, highlights the important aspects of this Hudson highlands preserve:

> The intrinsic value of the forest has may facets. The production of wood and wood products has been going on here for over 200 years; the watershed has been used by the village of Cornwall-on-Hudson for over 100 years, recreation, aesthetic value, the use of the forest as an educational tool and resource for scientific study, the cleansing properties for both air and water, the value as a wildlife habitat, the intact forest ecosystem — that has to be the highest value of all. Not only does the forest provide all of these things, but it does so simultaneously. (William Schuster, quoted in *Times Herald Record*, 15 Nov. 1992)

Developing a "sense of place" in any environment takes time. In each of the four participating district schools, staff members have planned for sustained, multiple-visit programs that would provide opportunities to acclimate to this new outdoor setting. These program plans have varied greatly, reflecting the objectives, structures, and educational approaches of each school. As the pilot site for the Black Rock Forest Project, the Magnet Middle School provided early leadership in exploring the forest and developing a variety of program structures. Sixth graders have visited the forest three or four times during each season and initiated long-term multiple-year projects; seventh graders have used the forest as their daily classroom for as many as seven consecutive weeks; and eight graders have extended their science studies with fieldwork and data collection in the forest.

Horizons-on-the-Hudson Magnet School has planned and initiated a series of day-long visits to Black Rock Forest by all of its kindergarten and fifth grade classes. Located near the Hudson River, Horizons has incorporated a comparative study of these two distinct environments.

The Primary Magnet School, working independently as well as with the middle school, has selected a diverse group of students who have explored the forest through eight full-day trips during the fall and spring. These "Primary Experts" have started to share their knowledge, skills, and love of Black Rock Forest as guides for classmates new to the forest.

The Sherpa Outdoor Leadership Program at North Junior High School has provided sixteen young adults with opportunities to study the forest while gaining outdoor leadership skills. Through day hikes, and low-impact camping and service projects, the Sherpas have developed a special relationship with Black Rock Forest.

As diverse as the approaches to programming in the Black Rock Forest project have been, all have sought one critical objective — to create an awareness of the delicate web of connections between all things, living and non-living, as well as an informed sense of responsibility to address present and future environmental needs. The process is a developmental one that moves from comfort, to awareness, to exploration, to knowledge and skill development, and finally to stewardship and action. The following selected journal entries and writing samples reflect some of the growth experienced on this learning journey:

> Yesterday we went to Black Rock Forest for the last time (this season). My buddy was Natasha. We got to see Mr. Brady's other dog, Woodchuck. I had to help Natasha on the stumps. She did not need any help on the log. We had fun because there were things to see like caves and animal homes. It was all so exciting!
>
> — *Virgina, primary school student*

> I saw a garter snake. It felt strong. It was very bumpy and coily.
>
> — *Brian, primary school student*

> I remember a dead raccoon lying on the ground and after that we went back to our house. And when we came back a few months later from that, the raccoon's skin was gone and only the tossed up bones were there.
>
> — *Solomon, primary school student*

> The beautiful world of fish and water creatures
> While the wind blows on my face.
> I feel the love and tenderness of the human race.
> If I could jump in the air and glide like a bird in the sky
> I would love it.
> The two islands are the two eyes on my face.
> The water is my blood flowing freely in my body
> And the trees are my hair
> Grown freely without despair.
> Last of all, the land is my beautiful skin like a round ball.
> Now you know what Tamarack means to me.
>
> — *Lemont Collins, Magnet Middle School student*

> I learned that if you want to enjoy nature more you have to be quiet, calm, and basically just let your hearing and seeing senses do their job.
>
> The thing that I realized the most is that you could go into the woods noisy and rowdy and not learn anything, but you could go in the same woods and be quiet and patient and get a lot more out of the woods.

> I feel happy and proud of the things we did and the things I learned.
>
> — *Sherpa Program participant, North Junior High School*

Educational connections

> Almost without knowing it, the primary mission of education has changed. Today, there is a common agreement that the mission of education is to provide students with the knowledge and skills required for "learning how to learn." What has not been recognized is that this new mission requires both a new content and a new process for education. And because content and process are so interdependently woven together, they cannot be addressed in the former fragmented, piecemeal fashion. (Clark, 1988)

Recognized for its educational innovations, the Newburgh Enlarged City School District has been open to the unique possibilities that active involvement in the Black Rock Forest Consortium has provided. The district, through its Magnet Schools program, already offers a diverse range of choices for district families. Fundamental academics, creative arts, humanities, a micro-community, international explorations, and communications and media are among the magnet themes currently offered. The Black Rock Forest Project has offered selected district schools an opportunity to enhance and expand their unique magnet focus in a setting that is stimulating and lends itself to interdisciplinary, hands-on approaches to teaching and learning. Walter Millman, associate superintendent for instruction comments, "The potential of Black Rock [Forest] is astounding at all levels of instruction. The forest is a means to reach all children and impress upon them their importance in the world we live in. The program encompasses not just science, but humanities, the arts and mathematics" (quoted in *Times Herald Record*, 15 Nov. 1992).

As a vast outdoor classroom, Black Rock Forest has provided unique opportunities to (a) integrate materials from a range of subject areas; (b) involve students directly in exploring typically abstract concepts; (c) address students' social and emotional needs as an integral component of their learning; and (d) develop problem-solving, investigative, and reflective abilities.

On a subtler but equally important level, this program has provided important new ways to structure time and space. Without the constraints of a routine imposed by clocks and bells or the physical limitations of a building, students have experienced a refreshing and empowering freedom.

Each participating school has been guided in developing programs at Black Rock Forest that support their unique mission and incorporate the academic connections that are central to this educational initiative.

Newburgh Magnet Middle School

The Newburgh Magnet Middle School, grades six to eight, supports young adolescents in the transition from elementary school to high school. The distinctive features of a middle school approach have lent themselves effectively to a diverse range of applications in Black Rock Forest:

Interdisciplinary curriculum links subject to subject and grade level to grade level, promoting academic strength, efficiency, and cohesiveness.

Small group instruction provides opportunities to work in groups formed and reformed to fit a variety of needs, promoting the development of social skills and academic achievement.

Advisory groups promote the development of adult–student and peer–peer relationships in support of personal, group, and academic growth.

Parent and community involvement invites and encourages parent involvement in their children's education and student involvement in their community's daily life.

Program initiatives by the middle school have included:

1. *Sixth grade classroom activities.* Working in self-contained classrooms, the 3 sixth grade teachers have planned and implemented a series of one-day trips to the forest. This series of class trips has included at least three visits per season and has focused on a variety of themes, including a general orientation to the forest (e.g., familiarity with roads, trails, and landmarks; trail procedures and safety; basic map and compass work); leaf and tree identification; animal habitat study; trees to lumber study; and bluebird house construction, placement, and monitoring.

2. *Seventh and eight grade teacher/team activities.* Working individually or in academic teams, middle school subject-area instructors have been developing laboratory experiences in the forest. These experiences have been planned to assist students in gathering data or samples for classroom study or applying course concepts through projects or problem-solving activities in the field. Teacher/team projects have included mapping plots of land using applied measuring, compass and plotting skills; and rock and mineral sample gathering for identification and display in earth science class.

3. *Classroom-In-The-Forest '92.* During the spring of 1992, 24 seventh grade students (half of the school's seventh grade population) were invited to participate in a unique and challenging educational experience. Between April and June, the students' daily classroom was the Black Rock Forest. During this time, they experienced a totally integrated curriculum that was developed and guided by middle school staff. Through

hands-on activities and projects, basic academic and social skills were to be reinforced through direct, relevant experiences.

During the 38-day experience, the students participated daily in flexibly timed and scheduled academic blocks (i.e., humanities, technology, and life skills), working in groups of eight. Guest speakers and artists augmented the instruction. Their days also included time for extended, multiple-day projects, and journal writing. As the experience progressed, student-defined projects were included. The program culminated in demonstrations and displays as part of the students' outcome assessment.

The impact of this experience for the students can be measured in several ways. The tangible products produced and skills demonstrated both individually and as groups are evidences of the concepts and skills gained and applied. Journal excerpts by students reflect some of the growth and change that occurred on both affective and academic levels.

4. *Advisory trips.* During the fall of 1992, all middle school students and staff members experienced a day in the forest as participants in an advisory group. This structured experience was focused on team building. Through participation in a series of group problem-solving activities and a hike, advisory group members were guided in discovering and applying the skills necessary for being part of a productive team.

5. *Laboratory summer school.* As a laboratory summer school site, the middle school developed a "Summer at Black Rock Forest" program during July 1992. During this 16-day program, the 140 students (grades 4–8) were divided into two groups (younger students and older students). The two groups alternated days in the forest with days at the middle school. The focus for the students was on forest exploration; for staff, the program provided opportunities to experiment with and adapt outdoor science and math materials from a variety of sources. The structure of the summer school program — a half day with students and a half day for staff development — supported the orientation and training of several additional Black Rock Forest leaders.

6. *Long-term projects.* The Black Rock Forest Blue Bird Project developed as an outgrowth of the forest exploration and activity development by the middle school's sixth grade teachers. The project was initiated as a concrete and logical culmination of the study of habitats and lumbering. The construction and placement of the birdhouses in a deer exclosure provided a unique opportunity for a long-term student research project. First placed during winter 1992, the blue bird houses' use by a variety of animals, insects, and birds has been carefully monitored by students through several seasonal visits.

As the sixth graders who placed the boxes have moved on into seventh grade, they have had opportunities to carry on the project. Currently, the site is being plotted for mapping, and first-year observations and conclusions are being written.

Horizons-on-the-Hudson Magnet School

Horizons-on-the-Hudson Magnet School, grades kindergarten through six, is one of the three original magnet schools established in the district in 1979. The program is based on the belief that every child has gifts and talents that must be identified and nurtured. Two key features of the school's educational approach have been effectively incorporated into the planning and development of the school's initiatives in Black Rock Forest. First, the use of a literature-based, interdisciplinary approach to academic development is very apparent in the project program plan, which addresses math, science, reading, social studies, and writing skills through a series of interrelated, hands-on activities, both in the forest and in the classroom.

The school's Talents Unlimited Program — a structured approach to developing critical thinking skills — has been effectively used for both previsit preparation and postvisit followup. This program focuses on the development of critical and creative thinking skills within the framework of the classroom curriculum. The Talents Unlimited Program develops a task-analysis approach that includes stages of productive thinking, forecasting, communication, planning, and decision making.

Black Forest Executive Director, Bill Schuster, explores the forest's geology with North Junior High School eighth-grade earth science students. Photo courtesy of Terry Murray.

For the 1992–1993 school year, Horizons developed a Black Rock Forest Project plan that involved all of the school's fifth grades and kindergartens in a series of three structured, seasonal visits to the forest. A partner-

ship between the two grades involved the fifth graders in both helping to prepare the kindergartners for their trip to the forest and then processing their experiences through drawing and writing.

This school's involvement with the Black Rock Forest Project is also consistent with its emphasis on environmental education and action. Through the efforts of the school's creative academic specialist, Cathy Plumstead, students at Horizons have explored the environmental impact of humans on their own neighboring Hudson River. As part of their efforts at Black Rock Forest, they are comparing and contrasting the conditions of these urban and natural settings. The students have also put their environmental awareness to work through successfully campaigning for a change in the district food service procedures. As a result of their lobbying, the district has changed from using disposable Styrofoam lunch trays to reusable plastic ones.

The Primary Magnet School

The Primary Magnet School, grades kindergarten through three, is also one of the three original district magnet schools. As clearly articulated in the school's mission statement, The Primary School is committed to creating "an environment that nurtures and stimulates the whole child [physically, emotionally, and intellectually] within a secure, humanistic early childhood framework." The distinctive features of The Primary Magnet School's program and structure are clearly reflected in their initiatives in Black Rock Forest. These features include (a) an integrated curriculum that fosters curiosity and enthusiasm for learning; (b) multiage groupings; (c) parent and family involvement in the educational process and the school community; (d) schoolwide literacy with an emphasis on reading for meaning and writing for real purposes; and (e) the development of mutual respect and understanding through multicultural and nonsexist studies.

As part of the school's current efforts to direct and strengthen its educational endeavors, it has incorporated the Developmental Classroom concepts developed by the Northeast Foundation for Children in Greenfield, Massachusetts.[3] This approach emphasizes integrated learning through direct experience and manipulation using a process of guided discovery. The social curriculum presently being implemented at The Primary School is a critical and energizing first stage. Gradually, students and staff are being introduced to an educational approach that encourages collaborative planning between teachers and students; guided exploration of materials, concepts, and environments; and development of problem-solving and critical thinking skills.

The Primary School's initiatives in Black Rock Forest have provided an ideal opportunity to extend these efforts to include community exploration in an outdoor setting. These initiatives include:

1. *Primary School/Middle School Learning Buddies Program.* Building on a collaborative structure developed in 1991, twelve students from each school worked together through a series of forest explorations during the spring of 1992.

2. *"Primary Experts."* As a natural progression from the primary/middle school collaboration in the spring, the twelve Primary Experts have continued to explore Black Rock Forest through a series of trips, and have shared their knowledge, skills, and positive attitudes with less experienced learning partners at The Primary School. Since May 1992, the Primary Experts have visited the forest four times. The first visit in June provided an opportunity to share what they had learned through the Middle School Learning Buddies Program with twelve other primary students. In the fall, the Primary Experts returned to Black Rock Forest, first to reconnect with their spring experiences in the forest, and then to plan a visit with primary learning partners. The fall program culminated in a trip by the twelve Primary Experts, their learning partners, and twelve parents and staff members.

The quality of the students' learning experiences and the depth of their excitement and involvement are reflected in their journal writings and drawings. Seven-year-old Virginia writes: "I will always remember Black Rock Forest for the beautiful trees and animals. I loved climbing the mountain. It was hard, but I did it." Second grader Anthony's comments reflect an important awareness of the characteristics of poisonous and nonpoisonous snakes: "I saw a big black snake. I thought that it was poisonous, but it had a very small head. Poisonous snakes have large diamond heads." The development of a sense of community is a critical aspect of The Primary School's mission. Seven-year-old Alisha reflects this positive sense — "I liked when my buddy and my friends were there. I felt happy and good."

3. *Parent involvement.* Parents of primary students in the Black Rock Forest Project have made a conscious effort to talk with their children's teachers and other school staff members about the positive impact of this program. During parent/staff meetings last fall, six parents of project participants arranged conferences with Primary Black Rock Forest Project Leader Pat Sandler to discuss their children's involvement in this outdoor initiative. Increases in motivation for learning, self-confidence, curiosity for further exploration, and interest in writing were among the positive changes these parents observed in their children as a result of the Black Rock Forest experiences. The following

excerpt from a parent letter commenting on the impact of the program reflects parent enthusiasm and support for the program:

> He [a Black Rock Forest Primary School participant] drew maps as he tried to describe how the trails were arranged. He made his father clear a path behind our house so that he could discover nature in our backyard. Most importantly, however, he gained self-confidence.
>
> He began to tell his stories at school. He eagerly wrote in his journal. He drew pictures. He took pride in being one of the privileged children that was selected to represent The Primary School.
>
> When the programs continued in the Fall, our son was more than ready. This time he was an authority. He was the teacher. He took his learning buddy under his wing. He showed him the ropes. He was so proud!
>
> I have seen such a change in our son. He found success in a school-related program. He loved it and was good at it and it was fun! He benefited in many ways and his school work reflected it.

North Junior High School

North Junior High School, grades seven through nine, has consciously and effectively addressed the need to promote a positive sense of community among students and staff members. To promote a drug- and alcohol-free environment at North Junior High School, staff members and students designed and implemented the Peer Leadership Program in 1989. Initial training was conducted through the Northeast Region Center — U.S. Department of Education. This program serves as an umbrella organization for a variety of student and faculty antidrug and anti-alcohol programs and activities. Once students selected for the program have completed a three-day residential training experience (peer leaders reflect a cross-section of the school in terms of gender, race, and academic ability), they select and receive additional training in one of four areas: (a) peer mediation, (b) peer teaching, (c) student activities/community service, and (d) Sherpa outdoor leadership training.

Each of these programs provides students with opportunities for personal growth and service to the school and the community. In addition to the basic life skills of communication, team building, and problem solving, each student gains specific knowledge and skills in his or her area of concentration.

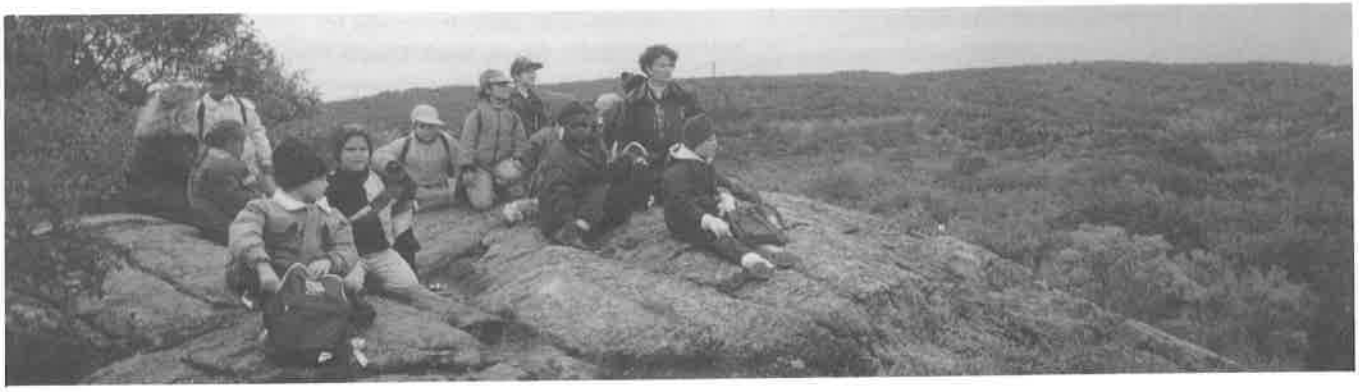
The Newburgh Enlarged City School District's involvement in the Black Rock Forest Project has provided a unique opportunity for peer leaders to gain the outdoor skills necessary to safely and effectively support the efforts of classroom teachers at North Junior High School and other district schools by acting as guides. By the end of 1992, the first group of fourteen Sherpas completed the basic peer leadership training and experienced several hikes as well as a three-day/two-night camping trip in the forest.

The initial impact of this outdoor leadership training can be measured in several ways. A journal entry made during the group's fall camping trip reflects the quality and variety of learning that occurred:

> I learned not to go ahead, to stay with the group, how to put a tent up, and learned about other people.... I feel I am getting good at hiking, but I want to know more. I also feel I can do a lot better if I try harder. I really hope I will stay in this group and do better things. I'm looking forward to the next couple of trips.

Through their fall camping trip, the Sherpa group faced a true challenge — to effectively use this natural preserve in a low-impact manner. Camping is restricted in Black Rock Forest, and future overnight experiences by Newburgh Enlarged City School District groups were contingent on the actions of this group. In his followup letter to the Sherpa's leader, Lynn Faurie, Forest Director Dr. William Shuster's commends the group's efforts. In a very positive assessment of this group's ability to apply their training, Dr. Schuster writes:

> Many Consortium members have feared that allowing camping would diminish the wild, natural quality of the Forest. However, your group has demonstrated that minimum- or no-impact camping is possible if a group is truly ecologically conscious and makes an effort. It demonstrates a great deal of maturity on behalf of your Sherpas. As a result, we welcome them to come again and will continue to allow camping by groups that demonstrate such ecologically sound practices.



Primary Magnet School 'experts' and staff atop Black Rock Mountain. Photography courtesy of Terry Murray.

Opportunities for service have emerged quickly for the Sherpa Outdoor Leadership Group. In conjunction with staff members of the Student Assistance Center (SAC), Sherpa leaders have joined students assigned to SAC in monthly trips to Black Rock Forest. These groups will maintain and improve an area in the forest bounding the Alec Meadow Reservoir. The Student Assistance Program is an alternative, in-school placement for students. It provides the time, setting, and staff support to work on behaviors that are educationally detrimental to these students, their classmates, and teachers. The staff hopes that the positive modeling and support of the Sherpa leaders will motivate and guide SAC students toward more positive, productive, and growthful behaviors.

Collaborative efforts

Our times call for collaboration. Given the magnitude of the challenges to our educational, social, and environmental systems, we are challenged to maximize our effort through effectively sharing skills, experience, and resources. The resulting networking fosters a unity of purpose and a focus of energy, often producing far more significant results. Both within the Newburgh Enlarged City School District and among consortium members, the Black Rock Forest Project has helped to promote positive interdependence.

Magnet Middle School/Primary Magnet School Learning Buddies Program

The Learning Buddies Program is a partnership between The Middle School and The Primary School. It was initiated by Jack Caldwell and Beverly Woods of the middle school and Pat Sandler of The Primary School. In planning the Classroom-in-the-Woods Program for seventh graders during the spring of 1992, staff members involved incorporated the Learning Buddies Program. Twelve seventh graders were partnered with twelve first and second graders from The Primary School. Over a four-week period, these "Learning Buddies" experienced a series of three days of activities in Black Rock Forest as well as a followup day hosted by the buddies at The Primary School.

The positive student interaction developed during these shared experiences met the needs of both schools. In preparing for and guiding activities with younger students, the middle school students were challenged to take responsibility, to exercise patience, creativity and caring — in essence, to assume adult roles. The impact of this experience for one of the seventh graders is evident from his journal entry: "Today we went on a Winnie-the-Pooh hike to Black Rock Mountain with the Learning Buddies, then they had to leave. Joey said 'Goodbye' and shook my hand. It felt good when he said that because I knew I was part of his life at that one point at Black Rock."

As they were experiencing activities with their seventh grade "Buddies," The Primary Students were also becoming familiar with the forest. At the end of the seventh grade/primary visits, the primary students returned to the forest with twelve new primary school friends. They became the "Experts," providing leadership and support to their less experienced classmates. A second grade "Expert" commented on her new role: "Yesterday I helped Lisa get across the cut logs. When Lisa fell in the mud, I helped her out of the mud. I like it."

Black Rock Forest Surface Water Monitoring Project

A promising new dimension of the Black Rock Forest Project is the evolution of a collaborative effort involving The Magnet Middle School sixth grades; Dr. James Simpson of the Lamont Doherty Geologic Observatory, Columbia University; and Dr. William Schuster, director of the Black Rock Forest. The main focus of this project is water quality and the impact of both human activities and the forest ecosystem on the quality of surface water.

In his role as director of Black Rock Forest, Schuster has sought to consciously build connections between various consortium members — connections that maximize the talents and resources of all involved. In his recent progress report on this collaborative project, he states: "We are exploring collaborations that combine the particular strengths of each institution in ways that benefit all participants.... At Black Rock Forest we are pursuing mutually beneficial linkages between scientific research studies and groups using the Forest for field-based research."

As an integral part of its overall Black Rock Forest Program Plan, the middle school has sought long-term projects in Black Rock Forest to be initiated in the sixth grade. Each new class of sixth graders would establish a specific focus for long-term data collection and interpretation. As these students move on through their seventh and eight grade years, these projects, supported by academic team staff members, would continue. The primary goals for this aspect of the middle school's Black Rock Forest Plan are: (a) to provide students with an opportunity to gain scientific concepts and skills through involvement in a meaningful, long-term project; (b) to gain an understanding and appreciation for the scientific process through a hands-on experience; and (c) to promote a deeper understanding and appreciation of our natural environment.

The middle school sixth graders took on the task of collecting surface water samples from 54 water monitoring locations that spanned the entire forest. Each sixth grader was assigned a spot and over the course of

the 1992–1993 academic year sampled and analyzed three water samples from this location. Each sample was analyzed for pH, temperature, odor, color, turbidity, flow, dissolved oxygen, calcium, magnesium, phosphorus, and nitrate. Advanced chemistry students from Newburgh Free Academy — the district's high school — worked with the sixth graders in testing their field samples. All of the data collected were entered into a computer, then graphed and analyzed by students and staff members. From these results, the middle school and Black Rock Forest staff members plan to guide the students in developing a testable research hypotheses based on this analysis, and then to proceed to test the hypotheses during the second and third years.

The work done by The Magnet Middle School sixth graders was linked to an ongoing scientific study of precipitation and stream flow chemistry at the Black Rock Forest being conducted by Dr. James Simpson and collaborators at the Lamont Doherty Geologic Observatory, Columbia University. Simpson and others are involved in extensive, long-term monitoring of the water chemistry entering and leaving the Black Rock Forest.

In support of the work being done through consortium member Columbia University, it is hoped that The Magnet Middle School will provide valuable details about the water chemistry at a wide range of points in the forest, pinpointing more accurately where critical biological and chemical processes are taking place. The potential outcomes of this collaborative project could have global implications as scientists continue to explore the buffering processes of forests in neutralizing manufactured and naturally produced acids in our water supplies and the "missing carbon" mystery related to the earth's capacity to respond to released carbons from the burning of fossil fuels.[4]

Human connections

> Let a man once begin to think about the mysteries of his life and the links which connect him with the life that fills the world, and he cannot but bring to bear upon his own life and all other life that comes within his reach the principle of reverence for life....
>
> — *Albert Schweitzer*[1]

Over the past 25 years, affective education has become a valid field of study and practice. Building on the philosophical foundations of humanistic psychologists, educational practitioners have developed effective strategies for addressing specific affective themes in the classroom. The work done by Sidney Simon, Jack Canfield, Gerald Weinstein, and others in developing positive self-concept and values clarification in the late 1960s and early 1970s was effectively adapted in a variety of educational settings. Through the therapeutic and educational work of these humanistic pioneers, intrapersonal and interpersonal growth are recognized as not only valid, but critical areas of educational focus.[5] The more recent educational developments in the fields of cooperative learning, conflict resolution, peace education, and multicultural education have gained broad recognition during the 1980s and early 1990s.

If our approaches to developing programs in Black Rock Forest are truly going to focus on the whole person, then a formal affective curriculum needs to be an integral component in the district plan. As students are making connections to the natural environment and with academic content, they also need to understand themselves and their relationships to others. The reverence for life that Schweitzer speaks of begins within. Once felt personally, this reverence can emanate to encompass the human and natural communities that surround each of us.

Fostering personal growth. Indicators of personal growth through the Black Rock Forest Project are more elusive to document than the academic gains. This assessment issue is a broader challenge in the field of holistic education, and surely a continuing focus for our work with this project. To date, our assessment tools have included student journal writing, group processing, structured observations, and solicited and unsolicited parent feedback. Information gathered from these sources has reflected evidence of increased self-confidence and self-esteem, increased positive behavior, improved attendance, and improved academic performance for the majority of the students involved in this educational initiative.

In reviewing our efforts to date, we can identify a number of aspects of this project that have been contributing to this affective growth: the setting, the approach, real challenges, and opportunities for success.

Fostering community. Fostering the development of positive, interdependent communities has been another important affective goal. Program plans for all four participating schools have included opportunities for team building, group problem solving, cooperatively structured learning groups, and group discussion. Recognizing the importance of this social component and developing the skills necessary for leading team-building activities were key components of the Black Rock Forest Project staff in-service.

Student growth in this area has been readily identifiable through progressive observations of group interaction. Again, students journal entries reflect new attitudes and awareness about the group and their individual roles as members:

> I was happy when me and Jamika worked with the compass together. We accomplished what we wanted to. I felt proud of myself when people were telling me the things that were good that I did and when people told me that I was like a mother or sister to them. I also felt

> sad because next year I'm not going to be able to do all of these things and I'll miss the people in this group.
>
> — *Eighth grader, North Junior High School*

Leadership development. As the emphasis in the workplace has shifted from a traditional competitive/individualistic goal structure toward a more cooperative model, the nature of leadership has also changed. Current theories of organizational leadership emphasize concepts of shared leadership, the creation of a shared vision, and empowerment of group members through cooperative teamwork (Johnson & Johnson, 1991).

It is within this contemporary framework that the Black Rock Forest Project has consciously attempted to nurture the development of individuals, whether staff members or students, who feel empowered to share their knowledge, skills, and vision in guiding our forest initiatives. Over the past two years, there have been many positive examples of this leadership and community development in action.

Black Rock Forest staff in-service. A critical aspect in planning and implementing the Black Rock Forest Project has been staff development. As the program has expanded to include four schools, the need to involve and train a core of staff members at each school has been essential to ensure quality and integrity in the present program and to provide for future stability and growth.

During the fall of 1992, eighteen staff members from the four project schools participated in a 32-hour in-service course designed specifically for the Black Rock Forest Project. It focused on the knowledge, skills, and attitudes necessary to effectively teach and lead in an outdoor setting and how to integrate outdoor and classroom experiences. The impact of this in-service is already evident as illustrated by:

- the development of comprehensive program plans by all four of the participating schools. A final requirement of the course, these plans challenged participating staff members to incorporate the holistic and experiential program model in articulating their school's program objectives, activities, and assessment/monitoring procedures.[6]
- the independent leadership being assumed in developing and supervising individual school programs in the forest. For the first time this past fall participating schools have led programs in the forest without direct supervision of forest or project staff.

Participating school leadership/community development initiatives. As identified earlier in this article, each school incorporated program elements supporting the development of leadership resources in groups while fostering a sense of community. Journal excerpts reflecting student observations on leadership effectively highlight this personal and social growth:

> I loved when I was the leader. It felt special and funny. I learned not to make fun of people.
>
> — *I'esha, Primary School "Expert"*

> When I went to Black Rock Forest, Stanley was my learning buddy. I taught him the rules.
>
> — *Chris, Primary School "Expert"*

Completing the circle

> We shall not cease from our explorations
> And the end of our exploring
> Shall be to arrive where we started
> And know the place for the first time.
>
> — *T. S. Eliot*

In September, the Newburgh Enlarged City School District will celebrate its third autumn in Black Rock Forest. With each new season, staff members and students from the school district return to learn from this rich resource and strengthen their relationship with this ecological community and with one another. It is a deliberate process — systematic, yet sensitive. As a parent who chaperoned his child's kindergarten class trip to the forest observed, this process sometimes requires new eyes:

> I grew up around Black Rock Forest and have long been a member of the Black Rock Fish and Game Club. I thought that I knew the forest like the back of my hand. Seeing it through the eyes of my five year old daughter changed my mind. I now look at it with awe and wonder, and I can't wait to go back. I'm seeing it through the eyes of a child for the first time.

Through our work in Black Rock Forest we have learned that it is possible to foster these fragile but vital environmental, educational, and human connections within the structure of a public school system. Doing so in an environmentally and educationally sound way requires a clear sense of philosophical direction, careful planning and monitoring, staff training, and a commitment to educational approaches that are *democratic, experiential, humanistic, and holistic* (Gang, 1990).

As project staff members continue to develop programs for upcoming seasons in Black Rock Forest, these efforts will focus on: (a) promoting further collaborative efforts between participating schools and with other consortium members; (b) fostering linkages between researchers and students that are mutually beneficial; (c) developing an operations manual to standardize policies, practices, and procedures for groups using the forest; (d) expanding service projects in the forest by participating schools; (e) establishing a ropes course in the forest; (f) further refining curricula and developing resources; and (g) developing a comprehensive bank of assessment tools for monitoring and evaluating educational programs that are holistic and experiential.

The Black Rock Forest Project has been a marvelous, mysterious mixed bag filled with wonder, challenge, fear

of snakes and deer ticks, affirmation, hope, smoke and rain drops, frustration, laughter, creativity, and perspiration. It has been a wonderfully human and naturally inspiring process that has reaffirmed the power and validity of holistic approaches to teaching and learning.

Inspired by the beauty and calm of Black Rock Forest, seventh graders Tina and DeShaunna wrote: "The world is awake, the sunrise sparkles loudly; how peaceful, how bold." May we guide one another in finding such a personal source of serenity and empowerment.

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Notes

1. Quoted from Steve Van Matre's (1983) book *The Earth Speaks: An Acclimatization Journal* (Warrenville, IL: Institute For Earth Education).

2. Although the specific needs statements vary, the *concept* of addressing basic educational and human needs in developing outdoor education programs has been drawn from Donald and William Hammerman's (1973) book *Teaching in the Outdoors* (Minneapolis, MN: Burgess Publishing).

3. For further information on the programs developed by the Northeast Foundation for Children, write 71 Montague City Road, Greenfield, MA 01301.

4. A full report on the Black Rock Forest Surface Water Monitoring Project can be obtained through Dr. William Schuster, Black Rock Forest, P. O. Box 483, Cornwall, NY 12518.

5. See Ron Miller's (1988) article, "Two Hundred Years of Holistic Education" (*Holistic Education Review, 1*[1], 5–12) for a concise history of the development of holistic education and the role of affective educators in its growth and present status.

6. Our Program Plan form was adapted from Jed Williamson's experiential activity planning model. For an informative article on this process, read "Designing Experiential Curricula" (1986; *Experiential Education and the Schools.* Boulder, CO: Association for Experiential Education, pp. 56–59).

Review Essay

Edward Goldsmith's *The Way: An Ecological World-View*

Reviewed by Dilafruz R. Williams and Kevin O'Sullivan

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Obsessed by the paradigms of economic development and the science that undergirds such an economy's productions, modern humanity has been led down a path of ecological destruction whose ultimate destination is now clear: the bleak and miserable demise of our species along with countless others. There have been prophets enough in the last 250 years to warn us of our peril, but we have not heeded them. We remain unaware and unwilling to become aware. Daily the evidence from the biosphere warns of impending disaster, yet we persist in our mechanistic, scientific, and economic nightmare in which we invert every value in order to plunder the real world and create a surrogate of inert, inanimate, and deadly objects whose manufacturing process endangers all life on earth. The problem with the project of "modernism" is that it has persuaded us to eat the menu card and completely miss the bounty that nature lays before us as our birthright: nourishment for body, mind, and spirit.

Is there any possibility for us to change this course set for such a disastrous end? Can we wake up from the modern economic nightmare that governs the lives, desires, and activities of one-fifth of the human population and is wreaking havoc everywhere and on every other species? Can we, before catastrophe overwhelms us, begin to imagine a more sustainable, holistic, and convivial way of being on this earth and in this world, the only place we know of to call "home"? If so, how might we define this way of living and on what assumptions would we base it?

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In *The Way,* Edward Goldsmith provides us with a map for an *ecological journey* that by definition rejects the reductionist science, philosophy, history, and education that has led us to the very brink of biospheric disintegration. Goldsmith's ecological worldview is embedded in the notion of the *sacred* — that is, reverence for all life and the mystery inherent in the living world. Adopting this worldview, Goldsmith argues, is the only way out of our crisis. If we miss this opportunity, to re-vision and realize our relationship to the earth, then we are indeed doomed to extinction, and that in short order.

Goldsmith's passion for and commitment to raising critical consciousness about our global ecological predicament is familiar to those who read the *Ecologist* — which he founded, published, and edited for many years. In *The Way,* Goldsmith now gives us the mature fruit of his lifelong study of and reflection on the problems we have created for ourselves by elevating reductionist science to an absolute. He joins contemporary writers such as Berry (1972, 1987, 1990), Bowers (1993), and Orr (1992) in providing an incisive critique of the scientific paradigm and urges us to a new postmodern way of thinking; a way that can sustain all life on earth even as the earth sustains it.

Goldsmith's originality lies in developing an epistemology of the ecological worldview. Drawing on the wisdom of vernacular societies and their subsistent economies, finely tuned to local ecological limits, *The Way* is a critical and timely book, of immediate relevance to everyone concerned about the quality of modern education purveyed today in our schools and universities. The appropriate question is no longer "What is education for?" but "What are children for?" If we continue to be captivated by and act under the spell of modernism, there will be no future for the offspring of any mammalian species. Hence Goldsmith invites us to a careful scrutiny of the principles and assumptions on which human societies in the past have envisaged and realized their relationship to the cosmos. At this terrible juncture in the history of our species, we have to call on the wisest and deepest experiences common to all of humankind so that we might arrive at some notion of a

convivial life, which, properly understood and practiced, will indeed include a future for all our children and our children's children.

Goldsmith seriously challenges the worldview of modernism and reductionist science. This paradigm erroneously credits itself with being rational and objective. "Scientific theses are formulated to rationalize the paradigm of science, and hence the worldview of modernism which it faithfully reflects," according to Goldsmith (p. xi). Objectivity, which is a requirement of science, is totally disregarded in this rationalization, despite "scientific" evidence of the ecological devastation brought on by modern economic behavior; when the evidence neither suits nor supports the modernist agenda, it is rejected. "Objective" scientists behave in an unobjective (i.e., unscientific) manner. Their "scientific" conclusions are false by any of their own scientific criteria:

> One reason why scientists accept the paradigm of science and hence the world-view of modernism is that it rationalizes the policies that produced the world in which they, and indeed all of us, have been brought up. It is very difficult for people to avoid regarding the world they live in — the only one they have ever known — as the normal condition of human life on this planet. (p. xiv)

In examining this rationalization, Goldsmith finds that

> Scientists, observing the world as a whole, do not easily detect abnormality in the fact that our rivers have been transformed into sewers; that our drinking water is contaminated with human excrement, pesticide residues, nitrates, radionuclides and heavy metals; that our agricultural land is eroding faster than soil can possibly form by the natural process; that our natural forests are being systematically replaced with ecologically vulnerable and soil destroying monocultures of fast-growing exotics, that our cities are increasingly ugly, chaotic and polluted.... *All this, and much else that is totally aberrant and destructive, most mainstream scientists will take to be normal.* (pp. xiv–xv, emphasis added)

Goldsmith not only challenges the objectivity of science, he also rejects the belief that science is the only method available to us as a reliable source of knowledge. He questions the unreasonable veneration we give to its claim to exclusive authority over truth and knowledge. Scientific reductionism studies all organisms, including humans, abstracted from their environments; they are decontextualized. When the context is removed and the environment is "objectified," our perception of reality is fragmented. Hence, our perceptions of the world are no longer congruent with the realities of the world; in misreading the texts of nature, we fall into serious epistemological error, which we take to be the truth. We have clearly lost "the Way," says Goldsmith.

The modernist worldview, which rules the lives of nearly all of us, identifies *wealth* solely in material, manufactured terms. Goldsmith questions the sanity of a premise that legitimizes the ruthless pursuit of economic gain at whatever cost to the environment. To entertain such a frightful fantasy requires, of necessity, that we desanctify nature (including our own) and remove ourselves from within the cosmic order. We also imperil the earth. The organism that destroys its environment is destroying itself. Could any behavior be more insane? Common sense, self-interest, not to mention sanity, tell us to reject such nonsense. But can we? And will we?

Edward Goldsmith is not interested in merely persuading us to abandon the blindly destructive modern path. In the tradition of constructive postmodernists, he offers an alternative that he believes will help us to correct our errors and heal our distorted relationship to the earth. By following this path, our lives will mend because this path is sacred: it is "the Way" which has been known to our species for millennia. Our only option, our only possible future is to resanctify nature, embrace the wisdom of an ecological worldview and live it.

The ecological worldview redefines *wealth* in terms of the "living world or Biosphere," the source of all our experience, the essence of all our wealth; however, the biosphere will reveal its wealth only if we "preserve the critical order of the natural world or of the cosmos" (p. xvii). In other words, we have to learn to live again, within ecological limits. We have to meet Necessity and learn to live with her in harmony. Many societies had a word for such a "lifestyle," which symbolized their relationship to the cosmos and maintained the critical order: Indian Vedic *R'ta*, the Avesta *Asha*, the Egyptian *Maat*, the Hindu *Dharma*, and the Chinese *Tao* (p. xvii). Science, having no metaphor for such contextual relationships, offers a simplistic, impoverished, and possibly erroneous worldview. This must be discarded and replaced by ecology. Goldsmith views ecology as a

> faith in the wisdom of those forces that created the natural world and the cosmos of which it is part; it is a faith in its ability to provide us with extraordinary benefits — those required to satisfy our most fundamental needs. It is a faith in our capacity to develop cultural patterns that will enable us to maintain the integrity and stability of the natural world. (p. 81)

Modernism, whose faith is the conquest and control of nature for the sole benefit of humankind is an aberration. Such a faith is an inversion of ecological faith, which, rooted in the ancient traditions of vernacular communities, is holistic, teleological, and unified. The

ecological worldview is embodied in Gaian interrelationships, *Gaia* being defined as: "a complex entity, involving the Earth's biosphere, atmosphere, oceans and soil; the total constituting a feedback or cybernetic system which seeks an optimal physical and chemical environment for life on this planet" (p. 101).

The principles of the Gaian law are incompatible with the reductionism of science, which views natural systems as no more than the sum of their constituent parts. The relationship of the one to the many, the whole to its parts, is critical to the maintenance of the ecological order. Moreover, ecology does not conform to arbitrary Cartesian divisions into which knowledge and reality have been split. Ecology, following the procedures of synthesis, provides a holistic framework for a worldview of coherent relationships. Since there is a *right* way — embedded in the ecological paradigm and found in the lived experiences of economically subsistent vernacular societies — not to live it, is to live the *wrong* way and be on the *wrong* path. Our modern societies are "anti-Way," says Goldsmith, because their way is "largely a result of economic development or progress, which can only be achieved by methodically disrupting the critical order of the Biosphere, indeed *destroying* the Biosphere so as to replace it with a totally different organization — the technosphere — which derives its resources from the Biosphere and consigns there its even more voluminous and more toxic wastes" (p. 348). The "anti-Way" of modern societies has led to the expansion of the technosphere at the expense of the biosphere, which our predations are destroying (p. 340). The "anti-Way" society, says Goldsmith, has set itself on a course that is socially and ecologically disastrous. Economic development, the "anti-Way" of the modern world, has produced a nearly global society; misery, boredom, alienation, and anomie have become our common lot. Our families and communities, despite our affluence, are disintegrating. Violence everywhere stalks the world. Goldsmith connects these developments with modern humanity's understanding of life as anthropocentric, with man holding a central position around whom everything else revolves. Goldsmith writes about this worldview:

> When a man dies, all is over.... Concerned with the short term of a single life, we are less interested in the world we will leave to children, grandchildren and great-grandchildren. The notion that we owe nothing to posterity seems to justify, in the eyes of many people, our terrible egotism, the deliberate pillaging of the world's natural resources to which our society is so committed in order to maintain our present standard of material consumption. (pp. 241–242)

In "The Way" of vernacular societies, on the other hand, people view their lives "as but a link in a long chain of being" (p. 241). The vernacular society values that which presents continuity of past, present and future. It cherishes the economically and ecologically sustainable life; its economy is embedded in social relations even as it is "ritually integrated into the cosmic hierarchy" (p. 294). Thus, the wisdom of vernacular societies, as Goldsmith interprets it, tells us that in order to live ecologically (and survive!) there has to be

> a transition to a world of largely self-sufficient communities, carrying out their economic activities at the level of the family, the small artisanal enterprise and the community itself, largely to satisfy local needs via local markets. Only in this way can economic activity be subordinated, as it must be if we are to survive for long on this beleaguered planet, to biological, social, ecological and moral imperatives. (p. 331)

It is when economic life ceases to be embedded in social relations, or when "social relations become 'embedded in the economic system'" that the ruthless pursuit of economic growth persists without any mediation from society (p. 307). Hence, the biosphere and its critical order are neglected and the irresponsible raping of the earth continues. "We will not save our planet through a conscious, rational, and unemotional decision, signing an ecological contract with it on the basis of a cost-benefit analysis. *A moral and emotional commitment is required*" (p. 77, emphasis added), according to Goldsmith.

In showing us *The Way*, Goldsmith's approach is unique. His ecological worldview is presented not as a linear sequence of arguments that logically unfold, but as a profound and erudite meditation on 66 aphorisms that he has chosen from what might be called the "Perennial Common Ecological Tradition." He leads us along ancestral paths in which are embodied the sacred principles of living within the biosphere. Goldsmith's writing is symbolic of the vernacular. With its richness of allusion to song and poetry, invocations, and ancient prayers, he urges us to seek out the pattern that connects the parts to the whole and the whole to its parts. His writing is a metaphor for "the Way" on which he seeks to lead us. His knowledge of the many disciplines that constitute the human intellectual experience is profound, and with the deft hand of a master he uses them to illuminate "the Way." What is sorely missed, however, is the feminine voice and perspective; surely an ecological worldview would have to be reconciled with the feminine worldview — not as a token, but as a critical element in any map of the ecological worldview. Nonetheless, this rich, provocative book invites us to follow "the Way," as the only viable alternative to the modernist scientific worldview with its rational "objectivities" and practices, which are causing untold destruction in every ocean, on every continent, and within every eco-

logical domain of which we know and probably within many of which we remain ignorant. As we totter on the brink of disaster, *The Way* is a clear and compelling call to a saner future.

What are the educational implications of Goldsmith's urgent call for an ecological worldview? How might his alternative conceptual framework affect and shape education and the modern educational enterprise? Goldsmith explains:

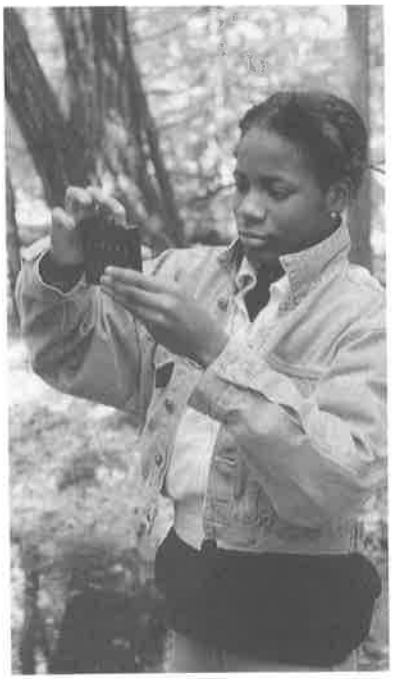
> The worldview of ecology is very much that of a vernacular, community-based society, whereas the worldview of modernism is that of a corporation-based industrial society. We must set out to combat and systematically weaken the main institutions of the industrial system — the state, the corporations and the science and technology which they use to transform society and the natural world. At the same time, we must do everything to recreate the family and the community, and above all an economy based on them, reducing in this way an almost universal dependence on a destructive economic system that in any case is certainly in decline and may well be close to collapse. (p. 381)

Because educational institutions are firmly embedded in the modern economic framework, Goldsmith's ecological worldview requires radical changes in education — its structure, curriculum and pedagogies — disembedding it from the clutches of economic and corporal industrial hold, and embarking it on a path of ecological sustainability. However, rejecting the present market-driven agendas for education, and the endless "wants" of consumerism played out daily in the modern classrooms, would be a tough call for most educators, themselves victims of the modern economically exploitative society. What, then, might be the possibilities for Goldsmith's hopeful path, the only path left for the human species?

Practical responses to Goldsmith's call can be found in the educational philosophies of Berry (1972, 1987, 1990), Gandhi (1958), and Orr (1992). In tearing away education from graduating the urban "homo economicus," Berry and Gandhi wish to root education in local culture, community, and soil. Rejecting the logic of the educational system that aims at alienating and uprooting people from their families, their communities, and their locale, both Gandhi and Berry plead for a localized ecological education where learning and sustainable living are intricately woven.

> In Berry, we find attempts to "resoil" education, for teaching and learning the skills and attitudes necessary to reconnect again with our local soils. This education transmogrifies modern, uprooted and uprooting "residents" into rooted, responsible dwellers; people who know how to cherish and regenerate their local spaces; thus becoming locally responsible for "saving the planet" one piece at a time, rather than with the proclamation of some grand global schemes of "managing the planet earth." (Prakash & Williams, 1993, p. 4)

Becoming responsible dwellers of the land is an educative process, for Berry. Unlike the modern educational system that is bent on routing people toward occupations and careers away from their families and communities, Berry's education demands knowledge and skills associated with the activities of local subsistence and regional self-sufficiency (Prakash & Williams, 1993, p. 6). Modern "professionals" claiming special expertise and knowledge, but unfamiliar with the particular bioregion, are not required for teaching the craft of living well, growing healthy food, and taking care of the soil. Instead, Berry's "garden ethic" sprouts from the local and indigenous people who, for centuries, have lived sustainably and can share their knowledge and skills, by directly engaging the young in these arts and hence education. Respect for the biosphere is the solid foundation of Berry's philosophy of education.



A sixth grade student tests the Ph of Canterbury Brook as part of the Black Rock Forest Surface Water Monitoring Project. Photo courtesy of Terry Murray (See pp. 44–55).

Prescient of the impossibility of nonviolence associated with colonial industrialization, Gandhi, too, urged the divorce of capitalist economics from the educational enterprise. His craft-centered education, elaborated in a program of *Nai Talim* or *New Education* for India, re-embeds children in their own culture and economy. Living modestly and practicing the virtue of enoughness, Gandhi's nonviolent education, in tune with Goldsmith's mission, at its core respects the bounties of nature even as it draws on nature to supply the ideal source for all learning. In cherishing the hand (i.e., labor), as well as the heart and the head, Gandhi's education provides for the all-around development of the individual, strengthening the spiritual awareness essential for our connectedness with the sacred — linking us all in an intricate web of life — human and nonhuman (Williams, 1993).

Along similar lines, Orr's postmodern education focuses on local ecological problems. Critical and constructivist, it aims at transforming the modern uprooted "residents" into "dwellers" of just, sustainable, postmodern communities (Orr, 1992, p. 102). Orr's pedagogy and curriculum, embedded in community, requires that despite our differences, there be a *common* awareness of natural limits and the interrelatedness of life, so that we can begin to define, direct, and construct knowledge for ecological sustainability. For Orr, such ecological literacy is necessarily a *community* venture. Asking, What does it mean to educate people so that they can live sustainably? Orr (1992, pp. 90–91) builds the foundation of education around the following principles: All education is environmental education; environmental issues need to be addressed through interdisciplinarity; education must occur through conversations and dialogue that also include a language of place (e.g., language of nature); the process of education is as important as the content (e.g., education ought to change the way people live, not just how they talk); experiencing the natural world is a critical part of education; and practical competence in local ventures of building sustainable communities is indispensable to ecological literacy.

Offering a university curriculum that would engage students in critical reflection on and deconstruction of the modern worldview, and construction of a postmodern ecological worldview, Orr is close to the Goldsmith agenda for *The Way*. Through the Meadowcreek Project, Orr's experimental curricula and pedagogy for ecological literacy at Hendrix College in Arkansas and Oberlin College in Ohio engage faculty and students in critical studies of their own concrete reality. Going beyond an awareness of their roles and lives as oppressor–oppressed, Orr paves the way for engaging the community of university scholars and students for alternative, contextualized, sustainable living and learning.

Thus, in the educational philosophies of Berry, Gandhi, and Orr, we find critical reflection on, questioning, and rejection of, our modern worldview while simultaneously constructing an ecologically sound educational alternative. It is important that "the Way" of *education* not become a mere intellectual exercise; rather, the pursuit of "the Way" would require directly embarking on the ecological journey. Indeed, the contours of Goldsmith's contextual ecological map must be felt and experienced while simultaneously rejecting the decontextualized "anti-Way" rooted in the scientific paradigm.

Education, in Goldsmith's ecological worldview, would need to be framed within the parameters of how we live and learn. The ecological worldview reflected in the practices of Berry's "garden ethic," Gandhi's nonviolent and subsistent education, and Orr's Meadowcreek Project should be inspirational as concrete examples of the unity of learning and living the ecological way. "The Way" mapped out by Goldsmith compels the pursuit of the sacred path as a fundamental *moral* task for our educational institutions today.

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Book Reviews

Education and the Environment

by Gregory A. Smith

Published by State University of New York Press (Albany), 1992

Reviewed by Mitchell Thomashow

When my daughter was in third grade, she started a "Save the World" club. She invited eight of her friends to join her in thinking about what they could do to protect the environment. The club would meet periodically throughout the next two years, mostly depending on the initiatives of my daughter. They compiled a short newsletter, wrote a letter to the newspaper, and made some crafts that they could sell to raise money for their club. For the children, the club served a strong social purpose that probably outweighed any considerations of environmental awareness. Nevertheless, it was gratifying to see this type of club emerge, based exclusively on the organizational efforts of the children. My daughter's teachers during these years (both of them excellent) were aware of the club, but never did anything to incorporate it in the everyday classroom curriculum.

When the "Save the World" club met, they would hang out in the woods, exploring their environs and discussing what actions they should take. They did not explore the woods as junior naturalists, following frogs or identifying plant species. Rather, they explored as adventurers, using the context of the woods to plan their social and political actions. So in what way were these children forming their environmental awareness? What did the notion "save the world" mean to these nine- and ten-year-olds? What exactly were they doing?

They were discovering their sense of place, thinking about (not always consciously) what was special about their habitats. They were as David Sobel (author of *Children's Special Places*) puts it, finding a place to discover a self. Through their explorations, both virtual and wishful, they were practicing real life, community-based environmental education. They were saving the world to discover themselves.

The children had neither the political sophistication nor the organizational skills to maintain their club on a consistent basis, but they found a way to practice involvement, to show their concern, and to have fun. But why couldn't this club be the focus of their school curriculum? Why was it to be something separate from school? Many years from now, when I think about my daughter's education and development, I am sure that her memories of the "Save the World" club will be far more vivid than whatever she was doing in school.

Gregory Smith, in *Education and the Environment*, would bemoan this lost opportunity. His thesis is that natural resource limits will inevitably demand that we redefine our relationship to nature. Schools are obliged to play a leadership role in this effort. In the chapter "Schools for a Sustainable Society," he urges that we create schools "that affirm students' attachment to others and the natural environment and which teach them to act collectively" (p. 94). Thus he suggests schooling for interdependence, or ways of integrating the school with the local community, involving children and parents in settings and practices that ground learning in tangible, real world, and local issues. He recommends that schooling be transformed from a market-oriented, individualistic, competitive milieu into an environment that develops social habits of cooperation and collective responsibility. For Smith, the habits and practices of sustainability start with the social and community matrix embedded in schools.

Smith would not be surprised that my daughter's teachers did not understand the deeper educational meaning of the "Save the World" club. According to Smith, teachers (despite their best intentions) are restricted by a rigid structure — the hierarchical, achievement-oriented, centralized system of modern schooling. Half of Smith's book is devoted to a derivative critique of the modern worldview. He juxtaposes the neo-Malthusian hypothesis, affirming the inevitability of ecological limits; with a neo-Marxist approach, explaining how the forces of production are linked to an ideological framework that myopically emphasizes material progress, machine metaphors, industrialization, and empirical epistemology. Schools are the perpetrators of this perspective, promoting independence, achievement, and universalism, but from a largely individualistic and privatized perspective. This allows students to learn how to function in a society of market relations, by "habituating them to forms of social organization and behavior characteristic of contemporary institutions" (p. 52), but prevents them from learning about the social and political fabric that makes for sustainable community life.

Hence, according to Smith, schools detach children from adults because of the way students and teachers are obliged to relate to each other. They detach students from students; they detach children from local and personal knowledge; and they teach students to submit to impersonal authority. Schools wouldn't know what to do with a "Save the World" club generated by the students themselves. Only the rare and gifted teacher in

a more accommodating school structure would understand the deeper meaning of this idea.

In contrast, Smith posits a sustainable worldview based on "forms of identification, participation, and accountability informed with a recognition of interdependence and interconnection with others" (p. 76). He emphasizes the importance of identifying with the natural world (citing the Greens and the deep ecologists, quoting Martin Buber at length), showing how cooperation and decentralization facilitate this approach, calling for a new worldview, or the development of new meaning systems.

Smith's critique is a heavily traveled path. I find the argument reductionist, but if you are looking for a succinct explication of the modern worldview, you will find it here. I don't think schools are as overwhelmingly repressive as he seems to indicate; I don't think teachers are as tightly controlled; I don't think teachers are as detached from students. Smith's analysis has a loud ideological ring, so be duly forewarned. However, the strength of Smith's book lies in the series of structural and curricular ideas cited above.

The second half of *Education and the Environment* is devoted to the suggestions, examples, and strategies that comprise a sustainable worldview. How can this approach be implemented in our schools? Smith has an excellent chapter on schools for at-risk youth in which he profiles four schools in various socioeconomic settings and shows how they manage (and struggle) to incorporate notions of collective responsibility and social cohesion. In the concluding chapter, "Strategies for Developing Schools," he suggests methods and examples for building coalitions among schools, policymakers, and the general public.

In addition, he reviews the work of other educators who have offered such suggestions, claiming that "although none of these people has considered the implications of the ideology of progress for the natural world in the way I have here, many have attempted to imagine an educational process capable of reversing some of the alienation, anomie, and lack of social integration that have accompanied modernization" (p. 103). This may be true of the authors he cites, but it is certainly not true of the environmental education literature. In fact Smith never addresses the rather prolific examples of environmental education curriculum that attempt to integrate notions of political, economic, and ecological sustainability. Smith's arguments would have been strengthened had he referred to and described this work.

Smith is strongly influenced by the vision of *bioregionalism* — the idea that ecological and community criteria should drive political and economic decisions. This is closely tied to David Orr's *Ecological Literacy* (also reviewed in this issue), which incorporates place, pedagogy, and sustainability. Fundamental to these notions, which have a longstanding tradition in American environmentalism, is our basic knowledge and awareness of the ecological communities in which we live.

Although the members of the "Save the World" club were legitimately concerned about saving the rain forests, none of the members could trace the water in their tap from cloud to ocean; few could identify five edible plants in the woods; few had intimate knowledge of the ecological cycles of their everyday life. Those who did have this understanding typically gained it outside the formal school setting, either in nature camps, or through their parents. For decades environmental educators have implored schools to involve students in understanding their local ecosystems: This is fundamental to a sustainable worldview — to knowing who you are and where you live.

The "Save the World" club is not just a cute, passing phase in my daughter's educational development. Nor can I dismiss my responsibility for its eventual demise by blaming the schools for not taking fuller advantage of it. The "Save the World" club is my club, too. My survival is at stake, and so is my education. It is a club to which I should pay dues every day; it should have my fullest and deepest attention. The club should meet in school, in the community, and at home. This is what a sustainable worldview is all about. This is what Gregory Smith, in *Education for the Environment*, is concerned with.

Lasting Lessons: A Teacher's Guide to Reflecting on Experience

by Clifford E. Knapp

Published by ERIC/CRESS at Appalachia Educational Laboratory (Charleston, WV), 1992, 118 pages, $10.

Reviewed by Giselle O. Martin-Kniep

Lasting Lessons is as much about reflecting on experience as it is about outdoor education. In this short book, Clifford Knapp, a professor of outdoor education at Northern Illinois University's Lorado Taft Field campus, explores different conceptions of knowledge, experience, reflection, and education. He provides a rationale for incorporating guided reflective activities into the education of students of all ages. The book's under-

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lying assumption is that the value of an instructional activity is inherently a function of the meaning with which the learner comes away, and its applicability to other situations or problems. In order for students to accumulate generative knowledge, they must examine new information in relation to previously held information, and expand their existent knowledge structures. Knapp characterizes reflection as the principal mechanism by which students can understand, apply, and expand upon knowledge acquired.

> In reflection, the learner is either becoming aware, transforming, analyzing, recapturing, reliving, exploring, or linking the parts of an experience. The goals, products, or ends of reflection are: new understandings or appreciations; commitments; the learning of meaningful and conceptually coherent information; or action. The means to achieve these ends are either drawing conclusions, communicating, evaluating, decision-making, thinking about relationships, or describing, often (in the case of learning activities) within a supportive group environment. (p. 17)

Lasting Lessons is about reflection in the context of outdoor education. Knapp characterizes outdoor education as an approach that brings about changes in learning activities, teaching strategies, grouping arrangements, and the use of space and materials. Notwithstanding the focus on outdoor education, the ideas and activities presented in this book can be used in all kinds of educational contexts. For example, in a chapter on questioning, Knapp includes a series of questions that teachers can use to encourage students' reflection on communication processes — expressing feelings, listening, and working in a group. These questions can be used in teaching and assessing different subject areas.

Lasting Lessons is organized into five short chapters. The first introduces the theme of reflection and provides a conceptual framework for the rest of the book. In this chapter, Knapp reviews key findings from cognitive psychology and learning theory, and applies them to different educational scenarios.

In one such scenario, a seventh-grade English class gets preliminary instruction on figures of speech, then walks to a nearby park where students write poems in cooperative pairs using such figures. After about 20 minutes, the teacher asks students to read their poems and then asks volunteers for suggestions on ways to make their cooperative work more productive. Finally, students are asked to create metaphors that capture their thoughts and feelings on what they have learned about writing or about working in groups. By this scenario, Knapp illustrates how the application of cognitive principles in an outdoor learning situation — by embedding facts in natural, spatial memory — increases understanding and recall.

The second chapter describes ways for leading a reflection lesson and discusses issues such as the need for teachers to create a classroom climate in which students feel comfortable enough to share their thoughts and feelings. This requires a role shift for the teacher toward that of facilitator.

> If one believes that the student is ultimately the person who is in charge of his or her learning, the role of the teacher becomes more clear.... Teachers who believe that students actively construct knowledge ... will understand that their role is to encourage (and "empower") students to take responsibility for their education. (p. 39)

In this chapter, Knapp also describes some of the activities that the teacher can engage in as facilitator of students' learning, such as: observing individual and group difficulties; supporting and maintaining a safe learning climate; enforcing agreed-upon norms and working guidelines; modeling recommended learning activities and behaviors; and summarizing and directing closure activities. Finally, Knapp discusses the role of the teacher in guiding the learning of declarative and procedural knowledge, and the importance of building a sense of community in classrooms.

The third chapter is devoted to questioning and its importance in helping students clarify their own thinking and internalize new knowledge. This chapter integrates the theory and practice of questioning and provides examples such as the following: *Spontaneous questions* — to guide an emerging discussion; for example, "Why was it difficult to ask for what you needed?" or "Can anyone state the two different points that have been expressed?" *Exploratory questions* — to survey what the students think and feel on a variety of topics; for example, "How did the activity impact the quality of the area?" or "How would you do this activity differently next time?" And *issue-specific questions* — to probe an issue or concept in depth, in order to clarify, analyze, and evaluate it. For example, to probe students' communication skills, Knapp suggests the following questions (pp. 56–57):

1. Could anyone give an example of when you thought you communicated effectively with someone else in the group?
2. How did you know that what you communicated was understood?
3. Who didn't understand someone's attempt to communicate?
4. What went wrong in the communication attempt?
5. What could the communicator do differently next time to give a clearer message?
6. What could the message receiver do differently next time to understand the message?

7. How many different ways were used to communicate messages?
8. Which ways were most effective? Why?
9. Did you learn something about communication that will be helpful later? If so, what?

In this chapter, Knapp discusses different hierarchies of questions such as those of Bloom, Paul and Binker, and Hyman, and provides teachers with various suggestions for improving their questioning techniques. These suggestions include providing sufficient time for students to respond to a question, using followup questions to clarify students' responses or sharpen their thinking — using curriculum objectives as the guide for developing a sequence of questions, but remaining flexible and open to "teachable moments," and encouraging students to ask questions at appropriate times.

The fourth chapter describes 20 activities for facilitating students' reflection that do not rely primarily on the use of questioning, such as using fishbowls, role taking, peer leadership, metaphor making, thinking aloud, and response journals. The following is Knapp's characterization of a role-taking activity that encourages student reflection:

> Students can assume different roles during the reflection session and look back on the experience through different eyes. For example, the students can describe what happened through the imagined perception of one of their classmates or even their teacher.... They can assume the roles of the principal, guidance counselor, bank president.... The point of this exercise is to help students view the experience from a new perspective, in the expectation that new meanings will emerge. (p. 73)

The last chapter contains a series of questions that allow for reflection on the book's content. Helpful appendixes include checklists and protocols for teachers to promote students' reflection on content and process, to deepen and develop their understanding of what they have just learned, and to gain better insight into how they went about learning it and how they overcame difficulties.

Overall, Clifford Knapp's *Lasting Lessons* is a timely, useful, and important resource that validates the need to help students reflect on, analyze, and evaluate their thinking and learning in a holistic and integrative fashion.

Earthways

by Carol Petrash

Published by Gryphon House (Mt. Rainier, Maryland), 1992, 206 pages, paperback.

Reviewed by Alice C. Brown

Dig your thumbnail into a dandelion stem. Watch the milky juice ooze out and feel it, sticky, on your fingers. Then thread the next hollow stem through the slit. Making flower wreaths used to be a wonder-filled way to spend a springtime afternoon! First, the gathering of the blossoms, then the task of wreath-making — finally the transformation as you and your friends each assume a royal role, flower crowned for the pageant! Today these simple activities that brought children in close contact with their natural world have gone by the wayside. Barriers between young children and bountiful fields of wildflowers are many. Their time is structured and parceled out among preschool programs, gymnastics, sports, dance lessons, or other appointments — even play dates! For those who live in metropolitan areas, sidewalk vendors provide the only daisies in their lives. And countless children live in conditions where the world outside their doors is not even a safe place for them to be.

Now a new activity book designed for classroom use and for families has revived many old-fashioned nature activities and supplied an updated view on the importance of providing opportunities for children to interact with dirt and bugs and wool and plants — real things, as opposed to Barbie dolls and Ninja Turtle figures. *Earthways* is devoted primarily to craft ideas based on natural materials that can be grown, gathered, baked, woven, molded, and sometimes used in dramatic play. These crafts are unusual in that they can be shared in the doing and the giving and the eating. They can be enjoyed for the process *and* the product, which often turns out to be an object of simple beauty. In her introduction, Carol Petrash describes how the book can be used and gives a compelling rationale for developing an appreciation of nature in children. She says, "A loving relationship with nature will not only promote health for our planet but health for our children as well." The elements of aesthetic enjoyment, ecological concern, appreciation of the usefulness of ordinary objects, and imaginative play are all woven into various projects presented within these pages. The child's role as creator is valued over the role of consumer that society imposes early on through television commercials and other means.

The organization of this book makes it possible for a teacher or parent to move directly to a particular season to find a variety of activities, each geared to a minimum age level (i.e., age 3 and up). Every seasonal section begins with a short introduction chock-a-block full of ideas rooted in concern for a wide range of environ-

mental issues. Special headings identify projects that "supply missing links," helping children to make connections (e.g., tomatoes grow on vines, not in cans) and apply the skills they are learning as they garden and work with art materials. Throughout the book, each project is outlined in clear, concise language and illustrated with Donald Cook's charming, soft black-and-white drawings that make it easy to follow the instuctions.

A particularly noteworthy feature of *Earthways* is the resource section in the back, which contains useful lists of suppliers of art materials, garden tools, books, and toys. "Green" organizations are listed so that teachers can network their ecological concerns and acquire additional information. One special section cites adult resource books and articles; another organizes children's literature according to seasonal topics. An early childhood teacher has much to learn from this book in terms of content, philosophy, and possibilities for lifelong learning for professionals and children alike. Petrash urges teachers to start many of the projects by simply picking up the tools and beginning — with the expectation that children who find an adult doing real work will want to join him or her!

Petrash is Waldorf trained, and readers familiar with the Waldorf School and Rudolf Steiner's philosophy of education will recognize certain gentle components of that system of ideas: a project for sewing felt gnomes; the use of beeswax, watercolors, and carded wool; a preference for wooden toys. A sense of peace and centeredness is fostered throughout the book.

To say that Carol Petrash's book *Earthways* is a delightful step backward into a time when childhood was synonymous with innocence would do it a disservice. The short portions of text that precede her well-thought-out projects emphasize the urgent need for all people, and especially young children, to learn to care for and value our limited natural resources. As an introduction to another way of doing things, another way of viewing our world, this is a timely book, because it is solidly grounded in an awareness of the urgent need to do something to reverse the unfortunate results of our rampant materialism. *Earthways* makes the hopeful statement that one person can make a difference. By raising children with an understanding of the fragile beauty of their surroundings and helping them to assume a joyful responsibility for protecting this precious environment, a teacher, or a parent, can change the world.

Ecological Literacy: Education and the Transition to a Postmodern World

by David W. Orr

Published by State University of New York Press (Albany), 1992. 210 pages., $14.95 paperback.

Reviewed by Madhu Suri Prakash

For the past two semesters, I have enjoyed the opportunity to explore David Orr's *Ecological Literacy* with almost 200 students, the majority of them studying to become schoolteachers. The context of our explorations is the typical "nice" campus — the kind of educational institution that Orr's book urges us to critically reassess for its ecological unsustainability, as well as to radically reform. *Ecological Literacy* leads the way with its insightful critiques and constructive proposals for curricular, pedagogical, and institutional transformation.

Rather than continue to limit ourselves with intellectual inquiries at the level of safe abstraction, Orr's book compels us to an honest examination of our own concrete institutions and classrooms. It pries open a deliberately closed window, necessary for the study of our day-to-day reality — the real life of professors and students on a typical campus, such as the one at which some of us recently investigated *Ecological Literacy*. Here, as elsewhere, the lovely stillness of our rural air is shattered during all the four seasons by loud machines and fossil fuel exhaust, blowing leaves in the fall, clearing snow in the winter, cutting grass in the spring and summer — even as thousands of able-bodied men and women on campus look for thoroughly useless ways to exercise, relax, grab some sun or outdoor air, while struggling on minimum wages earned in yet more waste-producing employment. Large food chains transport chemically grown and treated foods to us from thousands of miles, crossing vast oceans and land masses, even though many of the items consumed are grown within our bioregion. Equally complicated, elaborate, opaque, and ecologically destructive are the systems used for transporting campus waste, generated by disposables thoughtlessly consumed as much during faculty discussions about education as in campus cafeterias and offices — even as the technologies used for heating, cooling, and lighting buildings are designed and constructed by a mindset indifferent to nature's regenerative cycles. All other dimensions of the typically "excellent" educational institution are equally troubling, when reassessed from the ecological perspective.

Such campuses, Orr's analysis reveals, are seedbeds for the mass nurturance, graduation, and employment of ecological illiterates — professors and students successfully "educated" to live unsustainably, to close our

minds to the destruction of ecology, culture, and community wrought by our modes of learning, work, and leisure. The majority of classrooms on our campuses, observes Orr, are designed so that we can carefully hide from ourselves, teachers and learners alike, the violence that our day-to-day reality perpetrates on nature, including our own human nature. Our study of all the disciplines, including ecology, is professionally designed to be separated into neat disciplinary boxes, despite official protestations to the contrary. Such boxed learning keeps us distracted from seeing our social picture in its wholeness. Consequently, most of us graduate without becoming "critically conscious" of the profound destructiveness of our typical daily modes of teaching and learning, eating and defecating, heating and cooling, clothing and transporting ourselves, as well as performing our other basic cultural functions. Reflecting on the curricula and pedagogies, the conceptions of "excellence" that currently prevail in a typical campus, Orr notes:

> Not only are we failing to teach the basics about the earth and how it works, but we are in fact teaching a large amount of stuff that is simply wrong. By failing to include ecological perspectives in any number of subjects, students are taught that ecology is unimportant for history, politics, economics, society, and so forth. And through television they learn that the earth is theirs for the taking. The result is a generation of ecological yahoos.... (pp. 85–86)

Taught to be "ecological yahoos" or illiterates, we graduate after many years spent in classrooms as uprooted, dependent, and destructive "residents" or "biosphere" people — mastering only the knowledge and skills needed to supply ourselves with consumables from "places around the world that are largely unknown to us, as are those to which we consign our toxic and radioactive wastes, garbage, sewage, and industrial trash." The modern campus encourages faculty and students alike to equally finesse "the lesson of indifference to the ecology of their immediate place." Orr continues:

> Four years on a place called campus culminates in no great understanding of the place, or in the art of living responsibly in that or any other place. [P]lace has no particular standing in contemporary education ... organized around bodies of knowledge coalesced into disciplines ... abstraction piled on top of abstraction, disconnected from tangible experience, real problems, and the places where we live and work. [I]t is utopian, which literally means "nowhere." (pp. 103–126)

Engaged in "indoor learning" as a "preparation for [the] indoor careers" of commuters, transients, "itinerant professional vandals," and utopians, professors and students come to regard nature, "if they see it at all, as through a rearview mirror receding in the haze." It should therefore not surprise us, concludes Orr "to discover rates of ecological literacy in decline, at the very time that that literacy is most needed" (p. 105).

Aimed toward redressing the growing lacuna of ecological literacy, Orr's book is designed for the opening of the modern mind. It strives to takes us beyond our increasingly globalized "utopian" existence, so that we can learn once again to live well not merely in the realm of abstract theory, but equally in the concrete places where we work, learn, and live. And this means to Orr much more than the exploration of the "great books" promoted by Mortimer Adler, Allan Bloom, E. D. Hirsch, and the other leading champions of cultural literacy. For the latters' conception of literacy is demonstrably compatible with, in fact most conducive to, the ecological illiteracy of graduates "armed" with B.A.s, B.S.s, LL.B.s, M.B.A.s, M.D.s, and Ph.D.s, wrecking unprecedented damage on culture and ecology today.

Instead of "the great books" of Bloom and other contemporary patriarchs of "cultural literacy," Orr outlines an extensive reading list of recommended and required texts. "A Prerequisite to the Great Books of Allan Bloom: A Syllabus for Ecological Literacy" is the title of Orr's curriculum for grounding teachers and learners alike in our difficult, violent, and destructive social reality. Transcending all the disciplinary fiefdoms and boundaries that close the modern mind, Orr's curriculum helps us understand how and why we are living unsustainably. This curriculum, like Orr's book, renders naked the clay feet of all the reigning gods currently venerated within the hallowed classrooms of the educational system. Among these contemporary gods, we find the developed economy, whose growth is linked to social progress, human justice, and freedom; modern science and technology, with their false promise to overpower nature, transforming the niggardly earth into an Eden of endless consumption and comfort; the developed nation state, whose military and educational systems proffer to protect its citizens' globally oppressive and enviable standard of living.

Orr also studies the "moral alchemy" by which universities, schools, and their interrelated social institutions convert the "seven deadly sins (pride, envy, sloth, greed, gluttony, avarice, and lust) into economic virtues for the growing economy" (p. 181). Taking stock of the moral consequences of turning the traditional vices into modern virtues, Orr examines the disturbing specter of life in the hotter, more toxic, and violent world we are rapidly creating for ourselves with our taken-for-granted conveniences and the ceaseless acquisition of rapidly obsolescent economic "goods."

Having pushed the Gods of modern education off their privileged pedestals, Orr warns us against replacing them with yet another lifesaving deity/academic specialty: ecology. In fact, Orr's book offers strong resis-

tance to the latest comer in a long line of centralizing bureaucracies: ecocrats and ecological experts in "technological sustainability," who demand global powers and facilities in order to monitor and manage our sick planet. Instead, educating us about all the threats of adopting sophisticated modern technofixes, Orr reiterates the warning Ivan Illich issued more than a decade ago that "the coming steady state society will be an oligarchic, undemocratic, and authoritarian expertocracy governed by ecologists" (Illich, 1982, p. 19).

Joining Donald Worster, Orr wonders whether ecology will be "the last of the old sciences or the first of the new" (p. 94). If it reduces itself to becoming the modern science of efficient resource management, ecology is doomed to the former fate. However, if "ecology is the basis for a broader search for pattern and meaning," for raising ethical questions and addressing issues of social values, then it has all the promise of being a pioneer among the postmodern sciences. As such, it will lead the way in civic or moral education for decentralized Jeffersonian postmodern communities, self-governed by ecologically literate publics who practice "prudence, stewardship and the celebration of Creation" (p. 95).

Orr's *Ecological Literacy* is a pioneering work in a genre that refuses to reduce education into a separate discipline. It is an ideal book for encouraging education and other disciplinary "majors" to begin broadening their social horizons through ecological inquiries. It offers faculty and students an antidote to years of conditioning about the parameters of what legitimately constitutes one's chosen field of specialization. Orr successfully practices the interdisciplinarity that educators have faithfully preached and faithlessly ignored since the time of Dewey's discontent with modern education. Deftly deconstructing the disciplinary boundaries and fiefdoms created by professional academics, Orr's book is as much about education, economics, agriculture, and other social activities, as it is about ethics, aesthetics, and all the other normative perspectives that moderns must bring to bear on their quest to live "the good life."

In its conception of "the good life," Orr's education takes us off the fast lane of the global citizen, slowing us down so that we can cherish nature's rhythms and cycles. It invites us to live and learn at the pace of the rooted local resident. *Ecological Literacy* affirms the social philosophy of Wendell Berry, E. F. Schumacher, Lewis Mumford, and others who early discerned the dangers of grandiose "global thinking," of "thinking big." Orr reiterates the importance of learning to "think little." His educational focus is on the regeneration of campus communities, local neighborhoods, and households of people "who have been taught to be faithful first in little things" (p. 31).

Orr's postmodern educational challenge, then, is one of overcoming the "conceits of modern science" with the epistemologies of traditional, rooted, "dwellers" and stewards of the land: the modes of knowledge that are "location specific," evolving through a unique "coevolution" and "conversation" between human communities and their particular bioregions. Forsaking the modern Promethean aspirations to design universal solutions applied on the global scale, Orr reminds us of Berry's humbling insight that the "only true and effective operator's manual for spaceship earth" is not a book that any human will ever write; it is hundreds of thousands of local cultures" (Berry, 1990, p. 166).

Going beyond such reminders, Orr offers a range of possibilities for the practical application of all his ideas on ecological literacy, inside the classroom and out. This is a book not only about theory, but equally about the concrete practice of changing every dimension of our campus community, in order to bring it closer to the moral/ecological ideal of postmodern sustainability.

Can our "nice" campuses be morally transformed into sustainable communities? Employed to educate for the modern world that has failed, could we yet succeed as the urgently needed midwives for a postmodern world waiting to be born? Orr's book is a treatise that reflects a profound hope in education. What the folly of modern "education" has damaged, we can be re-educated to repair and regenerate, Orr strongly believes. Although much in nature has been savagely violated, all is still not lost. Though rapidly running out of time, we do have a couple of decades left for changing direction, veering off our immoral path of death and destruction. No fantasy of fast and easy fixes do we find here, however; but the mature recognition that moral changes in character and culture demand hard work and patient time. Through it all, Orr remains steadfast in maintaining his "difficult hope" (Berry, 1990, p. 58), which comes from fully seeing both the modern peril and the postmodern promise:

> The promise comes from the necessity (read opportunity) to reconsider, rethink, reform, restore and rebuild our world and worldviews.... The peril comes from both the urgency and scope of our plight and the resulting pressures that could cause us to make the transition badly. The nightmare hanging over humanity is that we will lack the intellectual clarity, good will, and moral power needed to make wise choices with all that this portends for whether and how humanity survives. (p. 40)

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Teaching Children to Care: Management in the Responsive Classroom

by Ruth Charney

Published by Northeast Foundation for Children (Greenfield, Mass.), 1992, 304 pages, $21.

Reviewed by Ron LaBrusciano

Books on classroom management often seem more theoretical than practical. Reading such texts, one wonders whether the authors have actually spent much time in the classroom or even worked with children extensively. Something is often missing, and it is often the spirit of children and a sense of the life of classrooms.

As an instructor of an introductory teaching methods course for preservice education students, it has been frustrating for me to try to incorporate such texts in my work with students who, themselves, have had limited exposure to children and teaching. My feeling has always been that it is best to deal extensively with management and discipline issues within a practicum seminar setting when students are actually with children in teaching internships. Meaning stems from experience, so this setting still feels most valuable for the learner, but this year I have used a resource with teaching situations presented that my students can relate to easily.

In *Teaching Children to Care*, by Ruth Charney, I have finally found the ideal book for my students. Charney has been teaching children and adults for more than 20 years. She brings to this work her classroom experiences with innercity children in New York, as well as children at the Greenfield Center School, an independent school that she co-founded in western Massachusetts. As a co-founder and senior consultant for the Northeast Foundation for Children as well, Charney has given workshops and advised teachers throughout the United States. Her wealth of practical and theoretical knowledge translates into a fresh and "down to earth" look at real classroom situations, mostly her own, but some others too. The variety of helpful examples includes dialogue, which allows the reader to feel that he or she is actually in a classroom, witnessing interactions between teacher and children.

Ron LaBrusciano is a core faculty member and internship coordinator at Antioch New England Graduate School in Keene, New Hampshire. He teaches courses in teaching methods, thematic teaching, applied curriculum and instruction, reading and other language arts, and children's literature. He also supervises teaching interns.

Charney states in the book's Foreword, "This is one teacher's story. It is largely anecdotal and personal. Yet it is more than a compendium of experiences. It is an outgrowth of a search for explanations." She goes on to say that teaching is, by definition, filled with uncertainties.

> I attempt with this book to reconcile these uncertainties through the ordering of my experiences, an ordering which, by necessity, places the integrity of theory against the immediacy of the classroom. I hope with this ordering to confront my own uncertainties with honesty, to share my struggles, and to pass on an affection for moral and ethical behavior. (ix)

The core of managing a responsive classroom, according to Charney, is the development of a social curriculum with the goals of creating self-control and community. "We need to seize ... opportunities for discussion. Our classrooms can become places where children think about what they do...." This takes time, both planned and as circumstances arise — "Without time in our day to talk to children and to allow them to talk to each other, there will be no discipline, only disciplining." In the end disciplining takes valuable time away from academics. Can a child really learn who is in conflict with self or with others, or who does not feel safe?

"Teaching discipline requires empathy and structure." This book is filled with anecdotes that speak to the simple but powerful notion of caring for children and helping them "to care for themselves, for one another, and for the world." Charney presents problems with suggestions that are treated with love, respect, and concern. "At times it takes only five minutes. We listen, we hear, we offer a gesture or a word of comfort. At other times, it is a longer process, of noticing and seeking solutions. It is not the solution that is the answer. It is the responsiveness that answers."

A plan of action for building self-control and community within the first six weeks and maintaining a social curriculum throughout an entire school year is clearly articulated. Strategies for helping children develop self-control — such as using logical consequences and time out, and dealing with power struggles — are examples of the many one-on-one skills covered. Techniques for helping a class to develop a meaningful set of rules and to meet as a group to solve a problem are also explored.

Throughout this book it is apparent that using language well is an important skill for both teacher and student. Charney helps us to use the right words with children and helps us to help children to use the right words with others. "Our words matter." "What we say and how we say it often takes thought, practice, even rehearsal." "We can make the most effective use of the